Bill 25, CD1
Early Testimony

PATRICK SEGUIRANT ARCHITECT

Architecture Planning Land Use Consulting

91-1030 Kaihi Street
Ewa Beach, HI 96706
Phone (808) 683-4477
Fax (808) 689-3663
seguirant@hawaiiantel.net

August 28, 2019

The Honorable Ikaika Anderson, Chair Honolulu City Council
The Honorable Ron Menor, Chair Zoning, Planning & Housing Committee
The Honorable Kymberly Pine, Councilmember
City and County of Honolulu
530 South King Street, Honolulu Hale, Room 203
Honolulu, HI 96813

Testimony Regarding Bill 25 (2019)

Dear Chairs Anderson and Menor, and Councilmember Pine:

I am providing this written testimony in opposition to the current language of Bill 25 (2019) relating to the adoption of the International Energy Conservation Code (IECC), 2015 Edition, with amendments by the Honolulu City Council. I have both personal and professional experience with the impacts of local and national energy codes which I wish to share with you. As you know a State Energy Conservation Code (SECC) has was also adopted by the State Legislature in 2017 which requires the County to follow suite within a certain time period. This code is already in effect making it unnecessary to rush Bill 25 (2019) through with less than the required thoughtfulness and community feedback.

I am a practicing Architect and a Homeowner with both solar water heating and photovoltaic panels for electricity. I also live in Ewa Beach (an area that has one of the highest solar exposures in the State). However, as an Architect and Home Owner I feel it is important to provide options to achieve energy efficiency. This bill limits rather than enhances a property owners' ability to find reasonable solutions for energy efficiency. My primary concern over this bill can be put into two categories 1) Are some of the provisions of this bill constitutional, and 2) Are some of the provisions of this bill implementable or practical. There are also portions of the bill that are poorly written. This will make understanding and implementation of it onerous. I will offer specifics of my concerns below:

Item 24, Relating to Tropical Zones. This code will affect the vast majority of Homeowners on Oahu as only mountainous areas would be exempt from the provisions of this code. There are a few provisions that make application of this code onerous. For example, those who live in high mountain areas do not need to conform to this code, but those who live below must conform. Why do higher income households, who can afford to live at higher elevations, get a pass while the rest have to pay higher construction costs to conform? It seems to me, everyone should comply with energy conservation and perhaps a performance based code is better suited to make that fair.

This provision also limits the amount of occupied space that can be air conditioned. This provision would make most of the homes in my community nonconforming as many homes Ewa Beach have air central condition. Central air conditioning would be obsolete. This is also short sighted. Given the number of days we have seen in excess of 90 degrees, as well as climate heating trends, we will need to rely on air conditioning, ceiling fans, and whole home fans together to stay comfortable. A two-

bedroom home running its air conditioning full-time can use the same or more electricity than a four-bedroom home running its air conditioning 8 hours of the day. It seems the proposed regulations are misplaced and do not take these simple things into account. Perhaps a simpler way to regulate is to limit the amount of electricity a household can use. There is no need to be fancy.

This provision also changes the SECC requirement for solar, wind or other renewable energy source supplies from 80 to 90 percent of the energy for service water heating. What gives the County authority to supersede the State's requirements for the same provision? This would not seem consistent with the State Constitution.

Item 25, Relating to Table R402.2.1. This section is incorrectly worded and referenced. This table does not exist in the IECC. Also, where is Section R407?

Item 28, Relating to Solar Water Heating. This provision further restricts water heating solutions allowed by Hawaii Revised Statutes, Section 196-6.6. Why are we adopting laws that are inconsistent with laws already in place? What gives the County authority to further limit the State's requirements relating to solar water heating? This would not seem consistent with the State Constitution.

The result of this provision would be elimination of tankless gas-powered water heaters allowed by the State today. The type of gas-powered water heater prescribed in this bill does not exist today. So what will a Homeowner that needs one do? I will use myself as an example. I use solar water heating (almost exclusively) for our household needs. I also have 27 photovoltaic (PV) panels. I work at home and use my central air conditioning for about 12 hours a day. I supply my own energy needs for about 6 months out of the year (when it is cooler), and draw energy from the grid the other 6 months (when it is hotter). My roof is practically full with PV panels. I go beyond the minimum requirement, yet that is not enough to maintain a net-zero energy usage. My major use of electricity is air conditioning and not water heating. I think this is true for most families, and it if is not now, it will be in the future. I wish I could free up more space on my roof to put in more PV panels by removing my solar water heating panel.

Further, in Ewa Beach we have very hard water. This means we have lots of minerals in the water that corrodes water pipes and fixtures where water runs through (including my solar hot water heater). Due to the corrosive nature of the water, I have to pay to maintain my solar hot water heater once a year because the anode rod corrodes completely in that time. Even with that maintenance, my solar hot water heater only lasted about 5 years before I had to replace it with another. This is not efficient for me and I would rather switch to a tankless gas-powered water heater. A tankless gas-powered water heater would be cheaper to buy and maintain.

Hawaii Revised Statutes, Section 196-6.6, would allow me to substitute a tankless gas-powered water heater for a solar water heater if I can prove that it is impractical for me to use a solar hot water heater. What gives the County authority to further limit the State's regulations relating to water heating? This would not seem consistent with the State Constitution.

Item 29, Relating to Ceiling Fans (Mandatory). While I use ceiling fans for myself and my client's homes, this language appears poorly placed and poorly written. I am unclear on the intent of the language.

Item 30, Relating to Ceiling Fans (Mandatory). This provision would amend a similar provision in the SECC, a State required provision. What gives the County authority to further revise or limit the State's regulations relating to ceiling fans?

I certainly do not object to being more energy efficient, and I am aware of the cost involved to achieve a net-zero energy usage. However, the adoption of the IECC (2015) and proposed amendments appears seriously flawed in many ways. Due to the significance of the change from the current energy code IECC (2006), this bill will have significant impact upon the construction industry and individual Homeowners.

I ask you to give more thought this bill before you vote it into law as it will increase the cost to build, own, and live in a home on Oahu.

Sincerely,

Patrick Seguirant, Architect

From: CLK Council Info
Sent: Thursday, August 29, 2019 11:30 AM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Ricardo Barboza
Phone	(808) 595-8844
Email	angelone46@msn.com
Meeting Date	09-04-2019
Council/PH Committee	Council
Agenda Item	Bill 25
Your position on the matter	Comment
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	My wife and I fully support efforts to make Hawaii energy efficient. We are retired and ready to rebuild an old termite ridden home. As such we seek to minimize our costs and in this regard we ask for your consideration to allow a variance for home owners to be allowed to use Hot Water on Demand systems. Our experience with these is they are cost efficient in their controlled minimal use, as opposed to the old gas water heaters. The expense of install and maintenance of a solar water heater is much larger expense for us and not acceptable. As for the argument about emissions, the use of "On Demand" is nothing compared to the waste of energy we see in malls, hotels, and many commercial businesses. Many restaurants cook with gas, we should not deprive home owners of the right to choose for the comfort of their home, and our wallet. As I said, we agree we should do what we can to protect our environment. We are not a million dollar entity that can afford to smother you with words, but we should also protect the rights of citizens against the push of these large profit making entities who seem to have no regard for the right of the citizen. respectfully yours R. Barboza Please allow the variance/exception for single family home owners to use controlled, cost saving, and safe gas water heating.
Testimony Attachment	

LOCAL #1 HI. IUBAC

International Union of Bricklayers and Allied Craftworkers Local #1 of Hawaii

2251 North School Street, Honolulu, HI 96819
Phone: (808) 841-8822 • Fax: (808) 777-3456

August 30, 2019

The Honolulu City Council
The Honorable Ikaika Anderson, Chair
The Honorable Ann H. Kobayashi, Vice Chair
530 South King Street, Room 200, Honolulu, Hawaii 96813

Statement of Local 1, Proposing Amendments to Bill 25, CD1

Dear Chair Anderson, Vice Chair Kobayashi, and Members:

The members and signatory contractors of International Union of Bricklayers and Allied Crafts Local 1 perform work relating to concrete, brick, tile, stone, marble, terrazzo, cement, and plaster. Some of this work directly relates to Subsection C402.2.3 of the State Energy Conservation Code ("SECC"), regulating thermal resistance of above-grade walls. This subsection of the SECC is addressed in paragraph (12) of Bill 25 (2019).

We support the amendments proposed by Hawaii LECET to Bill 25, CD1 (2019), and request that those amendments be incorporated into the bill. A copy of the proposed amendments can be found on the second page of our testimony. These proposed amendments will help the code to be best tailored to Hawaii's unique climate to help consumers and builders alike achieve energy efficiency and cost savings.

We note that amendments to other parts of the bill have been proposed by various stakeholders. Recognizing that there is not consensus on a number of important issues, such as EV parking requirements and solar water heater requirements, among others, we encourage the committee to work diligently to include all stakeholders, collect data, and pass a revised bill which will address the concerns of everyone involved.

In closing, we thank you in advance for your consideration of the amendments proposed by Hawaii LECET and supported by our union, and look forward to your continued support of the hardworking men and women in Hawaii's construction trades.

Melvin P. Silva, Jr.
8088418822
msilva@masonsunion.com
Comment

LOCAL #1 HI. IUBAC

International Union of Bricklayers and Allied Craftworkers Local #1 of Hawaii

2251 North School Street, Honolulu, HI 96819
Phone: (808) 841-8822 • Fax: (808) 777-3456

PROPOSED AMENDMENTS TO BILL 25 (2019)
SECTION 3, SUBSECTION (12)

C402.2.3 Thermal resistance of above-grade walls. The minimum R-value of materials installed in the wall cavity between framing members and continuously on the wall shall be as specified in Table C402.1.3, based on framing type and construction materials used in the wall assembly.

wood framed, metal framed, and mass walls

Exception: Continuous insulation for ~~wood and metal framed walls~~ are not required when one of the following conditions are met:

1. Walls have a covering with a reflectance of equal to or greater than 0.64 and/or overhangs with a projection factor equal to or greater than 0.3;

2. Walls have overhangs with a projection factor equal to or greater than 0.3. The projection factor is the horizontal distance from the surface of the wall to the farthest most point of the overhang divided by the vertical distance from the first floor level to the bottom-most point of the overhang; or

3. Concrete, concrete masonry units (CMU), and similar mass walls are six inches or greater in thickness.

The R-value of integral insulation installed in CMUs shall not be used in determining compliance with Table C402.1.3. Mass walls shall include walls:

1. Weighing not less than 35 psf (170 kg/m^2) of wall surface area.

2. Weighing not less than 25 psf (120 kg/m^2) of wall surface area where the material weight is not more than 120 psf (1900 kg/m^3).

3. Having a heat capacity exceeding 7 Btu/ft^2°F (144 ~~cage~~ kJ/m^2 • K).

4. Having a heat capacity exceeding 5 Btu/ft^2°F (103 kJ/m^2• K), where the material weight is not more than 120 pcf (1900 kg/m^3).

~~**Exception: Concrete, CMU, and similar mass walls are six** inches or greater in thickness.~~

 K

Speaker Registration/Testimony

Name	Joe Rodrigues
Phone	554-1719
Email	JRodrigu@Hawaii.com
Meeting Date	09-04-19yy
Council/PH Committee	Zoning
Agenda Item	Bill 25
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	Yes
Written Testimony	Please Don't pass Bill 25 Let The Home Owners Choose and Please Don't take away the Home owners Rights to choose. Thank You. Joe Rodrigues
Testimony Attachment	
Accept Terms and Agreement	1

IP: 192.168.200.67

Speaker Registration/Testimony

Name	Derwin Chu
Phone	8083883721
Email	Derwin.chu@pepsico.com
Meeting Date	09-04-2019
Council/PH Committee	Zoning
Agenda Item	Bill 25
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	Bill 25 takes away options for Hawaii homeowners and mandates items that will make even more expensive the cost of housing that is already unattainable for most locals. I am appalled that the Council is even considering it. Please don't let it move forward.
Testimony Attachment	
Accept Terms and Agreement	1

IP: 192.168.200.67

R

ulupono INITIATIVE

Email: communications@ulupono.com

HONOLULU CITY COUNCIL REGULAR MEETING
Wednesday, September 4, 2019 — 10:00 a.m. — City Council Chamber

Ulupono Initiative Strongly Supports Bill 25, Relating to the Adoption of the State Energy Conservation Code

Dear Chair Anderson, Vice Chair Kobayashi, and Members of the Council:

My name is Murray Clay and I am the President of Ulupono Initiative. We are a Hawai'i-based impact investment firm that strives to improve our community's quality of life by working toward solutions that create more locally produced food; increase affordable clean renewable energy and transportation options; and better manage waste and fresh water resources.

Ulupono strongly supports Bill 25 with Amendments to include increased charging capacity from Level 1 to Level 2 and increased EV-ready compliance to 100 percent in multi-unit dwellings (see details below). As you know, Bill 25 adopts the State Energy Conservation Code thereby updating the City's Building Energy Conservation Code to help make our residential and commercial buildings more energy efficient. It improves overall energy efficiency of the design and construction, amends the code to achieve the benefits associated with the tropical zone designation within the existing international codes, strengthens the solar water heating requirements, and requires electric vehicle (EV) capabilities, infrastructure, and energy storage systems. Updates to the City's Building Energy Conservation Code will help achieve 33 percent more annual energy reductions in home buildings compared to current code requirements.

Of particular support, we believe that EVs are an important avenue to address our pressing climate issues. While O'ahu's total greenhouse gas (GHG) emissions decreased by 17.4 percent from 2005 to 2016, on-road transportation emissions remained stubbornly steady, barely decreasing by 0.27 percent. EVs currently offer an effective option to advance clean renewable ground transportation and important benefits:

- *EVs provide immediate GHG emissions reductions.* EVs produce zero-emissions at the tailpipe, and even when full lifecycle emissions (from manufacturing through disposal) are considered, EV emissions are approximately 50 percent lower than internal combustion engine (ICE) vehicles. And as renewables increase, EVs become cleaner every year.
- *EVs can alleviate Hawai'i's high cost of living.* In one study, rural drivers in Hawai'i saved $417 per year by switching from gasoline to electricity.
- *EVs are prime for market acceleration from public support.* We have more EVs per capita than any other state, except California, but Hawai'i's EV charging infrastructure is falling behind. In 2015, there were 8 EVs for every public charging station in Hawai'i, and in 2018, there were 13 EVs per charger.

ulupono

Furthermore, newer technology enabled by "smart" charging and improved electrical load management enables a building to provide sufficient EV charging with a fraction of the electrical infrastructure. For example, a recent investment of Ulupono called EverCharge can supply Level 2 charging to up to 10x more parking spaces than one traditional Level 2 charger. EverCharge has proven this within multiple multi-unit dwellings across California, including new construction. So, while conduits and wiring would be needed to connect 10 cars, the primary electrical infrastructure and load requirements would be equivalent of just one traditional Level 2 parking spot. Therefore, this technology keeps costs to a minimum while maximizing the availability of EV charging. Across a 30-year mortgage, these costs could be less than $10 per month for home owners, less than a ½ percent increase in costs versus some current retrofits costing more than $20,000.

As such, we propose the bill be amended to:

1) **increase the charging capacity from Level 1 to Level 2 for residential and multi-unit buildings, found on page 8 of the bill. Level 2 charger ready would be more appropriate for future electric vehicles and technological improvements in the coming decades; and**
2) **increase EV-ready requirements to 100 percent of parking stalls in multi-unit dwellings since newer technology enables this to be accomplished with minimal additional costs to the current 25-percent requirement**

While we believe these amendments improve the value and effectiveness of this bill, at the very least, we implore the committee to pass the bill as proposed. This bill is an important proactive step to bolster our EV infrastructure and cement municipal leadership, as identified in O'ahu's Resilience Strategy Action 24.

Requiring qualifying facilities to be "EV ready" is smart and essential future proofing. Installing EV infrastructure post-construction costs 4 to 8 times more than at the time of new construction, and it represents approximately less than one percent of total new construction project cost. New construction will be in service for decades and, if this requirement is delayed, then these increased costs will disproportionately hurt the late adopters of EVs who are more likely to be the precise demographic that can benefit the most from the economic and health benefits of driving electric.

This EV infrastructure is so critical that Ulupono recently partnered with Hawai'i Energy to fund and launch a pilot EV charging station rebate program. The limited pilot, which runs through September 2019, aims to promote the installation of Level 2 charging stations at workplaces and multi-unit dwellings and to demonstrate the potential of a larger, statewide incentive program. Ulupono committed up to $150,000 in funding for the pilot.

As our energy issues become more complex and challenging, we appreciate this committee's efforts to look at policies that support clean ground transportation. See attached for additional supporting information and thank you for this opportunity to testify.

Respectfully,

Murray Clay
President

Attachments

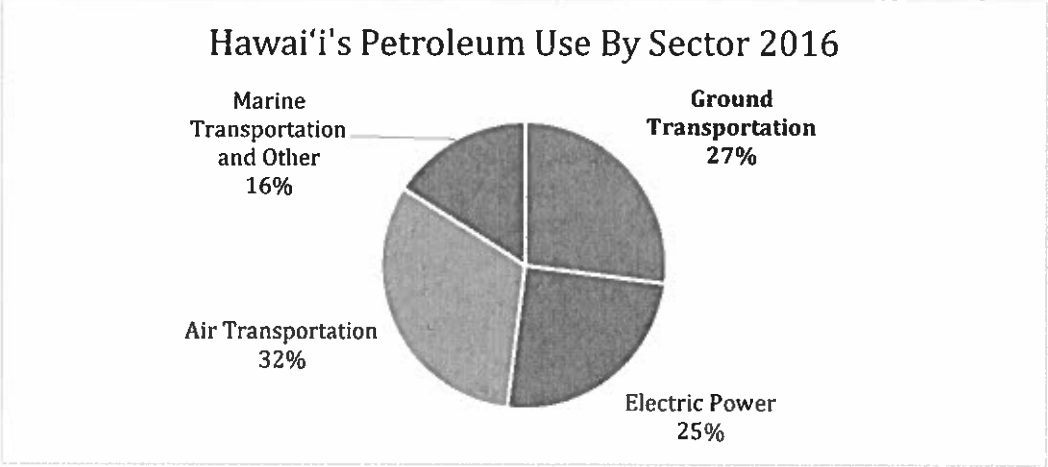
Brandon Toshihisa Lee
8087218041
blee@ulupono.com
Support

ulupono

Why Electric Vehicles Can Help Hawai'i

EVs Provide Immediate Energy and Environmental Impact

Ground transportation alone uses more than a quarter of the state's imported petroleum. Electrifying ground transportation will reduce our demand for imported fossil fuels, keeping millions of dollars in the state and cutting harmful tailpipe pollution from the air that our we all breathe.



Source: Hawai'i State Energy Office – Hawai'i Energy Facts & Figures

Converting from petroleum-based vehicles to EVs immediately reduces GHG emissions, helping combat climate change and its impacts on our islands. EVs produce zero-emissions at the tailpipe, and even when full lifecycle emissions (from manufacturing through disposal) are considered, EV emissions are approximately 50 percent lower than internal combustion engine (ICE) vehicles. Thus, EVs directly improve the health of our communities as well as the globe.

EVs can also support the integration of more renewables on the electric grid with smart charging technology and rate structures. Thus, proliferating EVs throughout Hawai'i will help accelerate progress towards the State's 100-percent RPS goal, as well as contribute to the State's Paris Agreement commitments and carbon neutral goal.

EVs Can Alleviate Hawai'i's High Cost of Living

EVs are an increasingly affordable option for all. For example, the 2019 Nissan Leaf's average MSRP is $33,095. After the Federal tax credit is considered, the purchase price is $25,595, which is less than the best-selling sedan in the country, the 2019 Toyota Camry. Attachment A to our testimony compares the purchase price of non-luxury EVs with top-selling sedans and the Toyota Tacoma (the top selling vehicle in Hawai'i).

EVs are also cheaper to operate and maintain because they have fewer moving parts and are more fuel-efficient. According to a recent study by the Union of Concerned Scientists, rural drivers in

Hawai'i saved $417 in 2018 by switching from gasoline to electricity.[1] On O'ahu, fueling an EV is like paying the equivalent of $1.80 for a gallon of gasoline (Reichmuth 2017).[2] And, because EVs have fewer moving parts and don't need oil changes, EV owners can save an average of $2,100 in maintenance costs over the life of an EV compared with a similar gasoline car (AAA 2017).[3] In addition, since rural drivers drive more than urban drivers, they will save more from switching to an EV – potentially up to twice as much as their urban counterparts (Gatti 2018).[4]

EVs are Prime for Market Acceleration

From a market perspective, EV adoption in Hawai'i has shown impressive growth, and the state ranks second in the nation behind California in the number of EVs per capita. As of November 2018, there were more than 8,000 passenger EVs registered in Hawai'i, a 24 percent growth from the previous year, but lower than the national average of 81 percent growth. This progress is despite not having strong supporting policies as seen in other states, municipalities and countries.

Based on global and local trends, these adoption numbers are expected to increase exponentially by 2030. Major automobile manufacturers, from Volvo to Volkswagen, have announced plans to offer electric versions of all their vehicle models. Even Ford has announced plans for an all-electric F-150 pickup truck, the top selling vehicle in the country. Policies across the globe are further supporting this transition; in fact, Britain and France have committed to end sales of gas-powered vehicles by 2040.

However, we simply cannot wait. A new report by the United Nation Intergovernmental Panel on Climate Change warns global human-caused emissions of carbon dioxide need to fall 45 percent by 2030, and it will "require rapid, far-reaching and unprecedented changes in all aspects of society." We must be proactive and act now with strong policy.

Hawai'i's EV charging infrastructure has not kept up with current demand and is ill-prepared for future projected EV adoption levels. In October 2015, there were 8 EVs for every public charging station in Hawai'i, and in June 2018, there were 13 EVs per charger. This worsening ratio implies it is becoming more difficult for EV owners to find public charging stations and signals inadequate infrastructure support for EVs, which impedes EV adoption and our transition away from fossil fuel vehicles.

---

[1] Electric Vehicle Benefits for Hawaii, https://www.ucsusa.org/sites/default/files/attach/2019/05/State%20Benefits%20of%20EVs_batch%202_HI.pdf

[2] How Much Does it Cost to Charge an Electric Car in Your City?, https://blog.ucsusa.org/dave-reichmuth/how-much-does-it-cost-to-charge-an-electric-car-in-your-city

[3] Electric Vehicle Benefits for Hawaii, https://www.ucsusa.org/sites/default/files/attach/2019/05/State%20Benefits%20of%20EVs_batch%202_HI.pdf

[4] Rural Drivers can Save the Most from Clean Vehicles, https://blog.ucsusa.org/daniel-gatti/clean-vehicles-save-rural-drivers-money

HAWAI'I GAS
THE CLEAN ENERGY COMPANY

R

Testimony to the Honolulu City Council
Wednesday, September 4, 2019 10:00 a.m.
City Council Chamber, Honolulu Hale

RE: Bill 25 (2019) - Relating to the Adoption of the State Energy Conservation Code

Chair Anderson, Vice Chair Kobayashi and members of the Council,

Thank you for the opportunity to testify **in opposition** of Bill 25 (2019), as it will drive up the cost of new home construction even further and eliminate residents' water heating choices, particularly renewable energy choices. I am Alicia Moy, the President and Chief Executive Officer for Hawaii Gas (HG). We have been providing Hawaii residents and businesses a cleaner, more affordable energy choice for 115 years.

Bill 25's water heating provision essentially eliminates gas energy, including renewable natural gas, as an energy choice for anyone building a new home or doing extensive renovations to their existing home. Supporters of the bill say, that is not the case, that no single energy technology is being favored, but I strongly disagree. A highly efficient, affordable on demand gas water heater can only be considered if it meets a 90% renewable standard. We have confirmed that these on demand gas water heaters can run on renewable natural gas and HG is committed to increasing its production of renewable natural gas. However, as a state regulated utility, HG cannot do it alone. The City and County of Honolulu owns the most readily available resource and HG must wait for the City to issue a request for proposals. Then, HG must competitively bid for this resource. As such, it is disingenuous to require this stringent requirement on HG to be 90% renewable in 90 days, especially when there is NO UTILITY IN HAWAII THAT CURRENTLY MEETS THIS 90% RENEWABLE STANDARD. According to the Hawaii State Energy Office's recently published Hawaii Energy Facts & Figures report, the electric utility on Oahu reported an RPS level of 22.1% for 2018. It is unreasonable for HG to be required to comply with a 90% renewable energy requirement in 90 days as Bill 25 would mandate.

To address this section of Bill 25, we propose the following amendments:

> Amending item (28) to read:
>
> Adding Subsection R403.5.5. Subsection R403.5.5 to read:
>
> **R403.5.5 Solar water heating.** New residential single-family buildings must use solar, wind or another renewable energy source for not less than 90 percent of the energy for service water heating.

HAWAIIGAS
THE CLEAN ENERGY COMPANY

Exception: If an architect or mechanical engineer licensed under HRS Chapter 464 attests and demonstrates that: (1) installation is impracticable due to poor solar resource; (2) installation is cost-prohibitive based upon a life cycle cost-benefit analysis that incorporates the average residential utility bill and the cost of the new solar water heater system with a life cycle that does not exceed thirty years; (3) a renewable energy technology system, as defined in HRS Section 235-12.5, is substituted for use as the primary energy source for heating water; or (4) demand water heater device approved by CSA International is installed, provided that at least one other gas appliance is installed in the dwelling. For the purpose of this section, "demand water heater" means a gas-tankless instantaneous water heater that provides hot water only as it is needed.

Our company is committed to doing our part to reduce the effects of climate change on our state, and the planet, and we are making great strides. We have been proactively working on initiatives to reduce our carbon footprint even prior to the state passing a law in 2018 to be carbon neutral by 2045. In fact, we have the LOWEST carbon footprint of any energy utility in the state.

We already produce clean, renewable, affordable and reliable energy, including solar. HG currently generates Renewable Natural Gas (RNG) at the Honouliuli Wastewater Treatment Plant, as well as hydrogen at our Synthetic Natural Gas (SNG) facility in Campbell Industrial Park. We are turning your waste into a renewable gas resource, which is being used to power the very efficient, affordable on demand gas water heaters Bill 25 seeks to eliminate.

The cost of housing in Hawaii is already outrageous. For some residents, the added cost of a solar water heater, instead of a gas option, is just too much. The estimated cost difference between the two is at least $7,000. We have heard a lot about solar tax credits and rebates, but those federal credits are about to expire. Gas water heaters offer an affordable, reliable and CLEAN and now RENEWABLE choice.

We strongly support the mission to help Hawaii reach its clean energy goals. Our actions prove that and will continue to do so, as we look forward to working with the City and County and private entities on more RNG projects. Our current biogas facility at Honouliuli Wastewater Treatment Plant removes the greenhouse gas equivalent of 400 cars from our roads annually and eliminates the need for 15,000 barrels of oil. As we develop more of these opportunities, those numbers will only grow. The Waimanalo Gulch landfill and Sand Island wastewater treatment plant are sources of biogas that exist today, which we are more than willing to partner with the City and County of Honolulu to develop into renewable natural gas as soon as possible. In turn, this will increase HG's renewable content, provide the City and County of Honolulu with a new revenue source, and further reduce greenhouse gas emissions for our

HAWAIʻIGAS
THE CLEAN ENERGY COMPANY

state. This is a win-win-win for everyone. Why aren't we spending our precious time and resources working on developing these solutions together?

The renewable energy field is a big one. We believe there is a role for solar, wind—and gas energy, including an increasing role for renewable natural gas. We respectfully request that HG be given due consideration, opportunity, policy framework, incentives and time frame to achieve our renewable and carbon neutrality goals.

Sincerely,

Alicia Moy

Alicia E. Moy
President & CEO, Hawaii Gas

From: CLK Council Info
Sent: Tuesday, September 03, 2019 7:16 AM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Jason Lau
Phone	8085512883
Email	lauja15@hotmail.com
Meeting Date	09-04-2019
Council/PH Committee	Council
Agenda Item	Bill 25, CD1 (2019)
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	The city shouldn't require consumers to install solar water heating. Instead it should be the consumer's choice to install their desired method of water heating. The city must take into account the cost of installing solar water heating and that not every consumer could afford it.
Testimony Attachment	
Accept Terms and Agreement	1

IP: 192.168.200.67

ELEMENTAL
EXCELERATOR

Written Statement of Elemental Excelerator
before the Honolulu City Council
Wednesday, September 4, 2019

In Consideration of Bill 25
Relating to the Adoption of the State Energy Conservation Code

Aloha Chair Anderson and Members of the Honolulu City Council:

Elemental Excelerator respectfully **submits support** for Bill 25, which regulates the design and construction of residential and commercial buildings for the effective use of energy through the adoption of the State Energy Conservation Code (2017), subject to local amendments by the City and County of Honolulu.

Elemental Excelerator is a Honolulu-based growth accelerator program founded and operating in Hawai'i. We have awarded over $30 million to 82 companies resulting in 56 demonstration projects in Hawai'i & Asia Pacific. Each year, we evaluate over 500 companies and look for innovative entrepreneurs from around the world to come to Hawai'i and find transformative solutions to help us achieve our 100% clean energy goals and solve our most pressing environmental problems. We select 15-20 companies annually that best fit our mission and fund each company up to $1 million.

In April 2018, Elemental Excelerator commissioned a study entitled *Transcending Oil: Hawai'i's Path to a Clean Energy Economy*. The study found that in Hawai'i, transitioning to renewable energy is cheaper than sticking with oil. The faster we go, the cheaper it will be. As a policy recommendation, the study identified following through and enforcing current clean energy policies by fully funding and implementing building codes and standards. The report also found that "*Energy efficiency efforts increased over the past decade, led by Hawaii Energy's electric savings programs and a **push to update building codes**.*" [1]

We support Bill 25 for the following reasons:

1. **It is economically responsible**: According to a report by the National Institute of Building Sciences, for every $1 invested in updating building codes, it yields an $11 benefit. Updating building codes increase resiliency and mitigate potential costs that could come from natural disasters caused by climate change.[2]
2. **It opens up opportunities for innovation:** Updating our energy codes can address the rapid changes in technology that innovation has developed. In particular, the sections that provide guidance on grid interactive water heaters and electric vehicle charging infrastructure support the deployment of commercial ready clean energy innovation.

[1] Larsen, J., Mohan, S., Herndon, W., Marsters, P., & Pitt, H. (2018, May 01). Transcending Oil: Hawaii's Path to a Clean Energy Economy, p.13 and 37, Retrieved from https://rhg.com/research/transcending-oil-hawaiis-path-to-a-clean-energy-economy/
[2] https://www.nibs.org/news/432994/National-Institute-of-Building-Sciences-Issues-Interim-Report-on-the-Value-of-Mitigation-.htm

About 17% of Elemental Excelerator's 82 portfolio companies, such as Hawai'i grown company Pono Home and Shifted Energy, focus on building efficiency, demonstrating an increased opportunity to attract innovation with forward-thinking policies such as Bill 25.

Mahalo for the opportunity to provide testimony.

Sincerely,

Aki Marceau
Managing Director, Policy and Community- Hawai'i

R

Hawai'i
Construction
Alliance

P.O. Box 179441
Honolulu, HI 96817
(808) 220-8892

September 9, 2019

The Honorable Ikaika Anderson, Chair
The Honorable Ann Kobayashi, Vice Chair
and Members
Honolulu City Council
530 South King Street
Honolulu, Hawai'i 96813

RE: Reservations about BILL 25 (2019) – RELATING TO THE ADOPTION OF THE STATE ENERGY CONSERVATION CODE

Dear Chair Anderson, Vice Chair Kobayashi, and members:

The Hawai'i Construction Alliance is comprised of the Hawai'i Regional Council of Carpenters; the Operative Plasterers' and Cement Masons' Union, Local 630; International Union of Bricklayers & Allied Craftworkers, Local 1; the Laborers' International Union of North America, Local 368; and the Operating Engineers, Local Union No. 3. Together, the member unions of the Hawai'i Construction Alliance represent 15,000 working men and women in the basic crafts of Hawai'i's construction industry.

We write to your committee about our deep concerns regarding THREE provisions of Bill 25 that we feel would adversely affect construction of housing in Honolulu.

Honolulu already has one of the highest median home sales prices in the entire country, and even the slightest increase in the price of a home could stop a development from being built.

Since the single-family home market is the largest generator of work hours for our members, we are extremely sensitive in any increases in the cost of housing.

Section R403.5.5 regarding solar water heating substantially increases the price of a house while eliminating the potential to use a renewable biogas option by mandating that builders go through the variance process in order to install gas lines.

Section C406.8 regarding electric vehicle infrastructure would also substantially increase the cost of building, especially when more cost effective measures of vehicle charging are coming to market.

Section R401.2.1 regarding "tropical zone" residential buildings limiting the amount of air conditioning to half of the area of the unit may make it unattractive for homebuyers who wish to have their entire cooled (particularly for unites located on the Ewa plain).

While the other revisions to the Energy Code are beneficial to conserving energy, we feel that that these 3 measures could push up the price of housing to the point where developers choose NOT to build, and our members would be adversely affected.

Therefore, we request your committee's revision to the three sections mentioned in Bill 25 (2019).

Mahalo,

Nathaniel Kinney
Executive Director
Hawai'i Construction Alliance
execdir@hawaiiconstructionalliance.org

RMA SALES

• Windows & Doors Fabricator/Purveyor •
• Screen & Storm/Security Products • Jalousie Windows •
• Mirror Closet Doors • Components •

99-134 Waiua Way, Aiea, HI 96701 • Ofc 808-487-9041 • Fax 808-488-6481 • Island Toll Free 1-808-644-2882
www.rmasalesco.com

Testimony to the Honolulu City Council
City & County of Honolulu
Honolulu, Hawaii 96813-3077
Wed., Sept. 4, 10:00 a.m.

Re: Bill No. 25 (2019) Relating to the Adoption of the State Energy Conservation Code

Chair Anderson, Vice-Chair Kobayashi, and members of the Council,

My name is Anthony Borge, Director of Business Development with RMA Sales. We are a locally-owned and managed kamaaina company since 1961. We manufacture and distribute louver jalousie windows, security and storm screens through a network of dealers, hardware stores and contractors throughout the state of Hawaii.

The intent/purpose of the energy code is to regulate the design and construction of residential and commercial buildings for the "effective use of energy" through the adoption of the State Energy Conservation Code 2017.

As a follow-up to the previous meeting held on Thursday, July 25, 2019, I am here today in **opposition to the proposed bill** and to respectfully submit the following amendments to exempt louver jalousie windows from Bill 25:

- C402.4.3.5 Area-weighted SHGC. In commercial buildings, an area-weighted average of fenestration products shall be permitted to satisfy SHGC requirements. Exemption: Jalousie windows are exempt from SHGC requirements.
- R401.2.1 Tropical zone.
- Table 402.2.1 Window SHGC Requirements c.
- c. Exemption. Jalousie windows are exempt from SHGC requirements
- Delete #13 "Jalousie windows shall have an air infiltration rate of no more than 1.2 cfm per square foot (6.1L/s/m2
- R402.3.2 Glazed fenestration SHGC
- ....An area-weighted average of fenestration products more than 50-percent glazed shall be permitted to satisfy the SHGC requirements. Exemption: Jalousie windows are exempt from SHGC requirements

RMA SALES
SCD RMA, LLC

The louver jalousie window system is the most energy-efficient window system for Hawaii. Please let the homeowner decide which window system is best suited to deliver maximum natural air flow that suits their pocketbooks and delivers efficient use of energy.

Please accept these proposed amendments.

Thank you.

Respectfully submitted by

Anthony B. Borge

NAIOP
COMMERCIAL REAL ESTATE DEVELOPMENT ASSOCIATION
HAWAII CHAPTER

September 2, 2019

The Honorable Ikaika Anderson, Chair
The Honorable Ann Kobayashi, Vice Chair
Members of the City Council, City and County of Honolulu
Honolulu, Hawaii 96813-3077

RE: **Bill 25 (2019) – RELATING TO THE ENERGY CODE**
Hearing date: September 4, 2019 at 10:00 am

Aloha Chair Anderson and Members of the City Council,

Mahalo for the opportunity to submit testimony on behalf of NAIOP Hawaii offering comments to Bill 25 (2019), as well as proposed amendments.

NAIOP Hawaii is the local chapter of the nation's leading organization for office, industrial, retail, residential and mixed-use real estate. NAIOP Hawaii has over 200 members in the State including local developers, owners, investors, asset managers, lenders and other professionals. NAIOP Hawaii is generally supportive of the City & County's efforts to promote sustainability. We are, however, concerned with the tremendous burden an additional mandate places on the cost of building homes in Hawaii, especially affordable housing.

Bill 25 seeks to adopt the Energy Code with certain amendments. Among those amendments there is a mandate that up to 25% of parking stalls be "electric vehicle charger ready." Hawaii's residents and businesses are already among the most heavily taxed in the entire country. The real estate development and construction industries are two of the biggest drivers of the entire State economy. These additional costs may seem minor, however, there are already significant development mandates which increase the cost of building residential units, which has significantly exacerbated the lack of affordable housing in Hawaii.

In addition, the bill places tremendous administrative burdens on developers and associations. The electric vehicle charger mandate may be feasible for developments with a parking structure, but for paved parking next in a multi-family development, where parking stalls are assigned by proximity rather than demand for infrastructure, sale of units may be driven by the parking stalls rather than the units themselves. In addition, once the parking stall is assigned, it is almost impossible to reassign parking stalls to different units.

A better alternative to the mandate would be to incentivize installation of electric vehicle infrastructure or find alternative venues such as at the work place. Where building owners and developers see a demand or other benefit that outweighs the cost, or makes economic sense, the owners will move forward to meet the need imposing unwarranted costs.

NAIOP also respectfully requests the Council to consider the amendments it has provided to R403.5.5 of Bill 25 regarding solar water heating requirements. While we support the intent of this provision, NAIOP has offered language to provide greater flexibility to developers under certain circumstances.

In order to keep the cost of housing from spiraling out of control, the City should resist the urge to place additional costs on development. For these reasons, we urge you to amend Bill 25 to eliminate or reduce burdensome mandates.

Mahalo for your consideration,

Scott Settle, Director
NAIOP Hawaii

Attachment

CITY COUNCIL
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII

ORDINANCE _____

BILL **25 (2019), CD2 (Draft)**

A BILL FOR AN ORDINANCE

RELATING TO THE ADOPTION OF THE STATE ENERGY CONSERVATION CODE.

BE IT ORDAINED by the People of the City and County of Honolulu:

SECTION 1. Purpose.

The purpose of this ordinance is to regulate the design and construction of residential and commercial buildings for the effective use of energy through the adoption of the State Energy Conservation Code (2017), subject to the local amendments herein.

SECTION 2. Title.

Chapter 32, Articles 1 to 4, Revised Ordinances of Honolulu (ROH) 1990, are repealed in their entirety.

SECTION 3. Adoption of the International Energy Conservation Code

A new Article 1, Adoption of the State Energy Conservation Code (SECC), of Chapter 32, ROH 1990, is hereby adopted to read as follows:

Article 1. Adoption of the State Energy Conservation Code.

Sec. 32-1.1. Title 3, Chapter 181.1 of the Hawaii Administrative Rules (HAR). The State Energy Conservation Code (SECC), which adopts the International Energy Conservation Code, 2015 Edition (IECC), is hereby adopted and made a part of this chapter, subject to the following amendments:

(1) Section 3-181.1-6 of the SECC is amended to read as follows:

C101.1 Title

This code shall be known as the Building Energy Conservation Code (BECC) of the City and County of Honolulu (CCH) or the CCH BECC referred to herein as "this code."

(2) Subsection 3-181.1-7 of the SECC is amended and adopted to read as follows:

C103.1 General. When the requirements in this Code apply to a building as specified in Section C101.4, plans, specifications or other construction documents submitted for a building, electrical or plumbing permit required by the jurisdiction must comply with this code and will be prepared, designed, approved and observed by a design professional. The

responsible design professional shall provide on the plans a signed statement certifying that the project is in compliance with this code.

Exception: Any building, electrical or plumbing work that is not required to be prepared, designed, approved or observed by a licensed professional architect or engineer pursuant to Chapter 464, Hawaii Revised Statutes (HRS).

(3) Subsection C103.2 of the IECC, adopted by the SECC, is amended to read as follows:

C103.2. Information on construction documents. Construction documents must be drawn to scale upon suitable material or submitted in an electronic form acceptable to the code official. Construction documents must be of sufficient clarity to indicate the location, nature and extent of work proposed and show, in sufficient detail, pertinent data and features of the building, systems and equipment as herein governed. Details must include, but are not limited to the following, as applicable:

1. Insulation materials and their thermal resistance (R-values);
2. Fenestration U-Factors and solar heat gain coefficients (SHOCs);
3. Area-weighted U-factor and SHGC calculations;
4. Mechanical system design criteria and power requirements;
5. Mechanical and service water heating system and equipment types, sizes and efficiencies;
6. Economizer description;
7. Equipment and system controls;
8. Fan motor horsepower (hp) and controls;
9. Duct sealing, duct and pipe insulation and location;
10. Lighting fixtures schedule with wattage and control narrative;
11. Location of daylight zones on floor plans; and
12. Air sealing details.

All plans, reports, and documents must be certified by the project design professional or engineer, using the appropriate form shown below and

submitted to the code official certifying that the plans and documents conform to the requirements of this code,

CITY AND COUNTY OF HONOLULU REVISED ORDINANCE CHAPTER 32, HONOLULU COUNTY CODE 1990, AS AMENDED
To the best of my knowledge, this project's design substantially conforms to the Building Energy Conservation Code for: _____Building Component Systems _____Electrical Component Systems _____Mechanical Component Systems
Signature:_____Date:_____ Name:_____ Title: _____ License No.: _____

Include only those items that the signator is responsible for. This block shall be on the first sheet of the pertinent plan, e.g. architectural, electrical, and mechanical. The above may be submitted separately to the Building Official in a letter including the identification of the building.

(4) Subsection C104 of the IECC, adopted by the SECC, is amended to read as follows:

C104.2 Required inspections. Inspections must comply with Chapter 16 of the ROH 1990 (as amended).

(5) Subsection C104.2.6 of the IECC, adopted by the SECC, is amended to read as follows:

C104.2.6 Final inspection. The building must have a final inspection and cannot be occupied until approved. The final inspection must include verification of the installation of and proper operation of all required building controls, and documentation verifying activities associated with required building commissioning have been conducted and any findings of noncompliance corrected.

(6) Subsection C104.6 of the IECC, adopted by the SECC, is amended to read as follows:

C104.6 Re-inspection and testing. Where any work or installation does not pass an initial test or inspection, the necessary corrections shall be made to achieve compliance with this code. The work or installation must

then be resubmitted to the responsible code official for inspection and testing as required by this code.

(7) Subsection C104.7 of the IECC, adopted by the SECC, is amended to read as follows:

C104.7 Approval. After a building passes all tests and inspections required by this code, the responsible design professional must submit a confirmation letter to the code official certifying that the building has passed all of the tests and inspections required and stating that the building owner has received the Preliminary Commissioning Report, as required by IECC Section C408.2.4.

(8) Subsection C107.1 of the IECC, adopted by the SECC, is amended to read as follows:

C107.1 Fees. Prescribed fees must comply with Chapter 18 of the ROE] 1990 (as amended).

(9) Subsection C108.1 of the IECC, adopted by the SECC, is amended to read as follows:

C108.1 Authority. Stop work order shall comply with Chapter 18 of the ROH 1990 (as amended).

(10) Subsection C109.1 of the IECC, adopted by the SECC, is amended to read as follows:

C109.1 General. Board of Appeals shall comply with Chapter 16 of the ROH 1990 (as amended).

(11) The following definitions in Section C202 of the IECC, adopted by the SECC, are amended to read as follows:

CODE OFFICIAL means the Director of the Department of Planning and Permitting or the director's authorized representative.

DWELLING UNIT means a building or portion thereof that contains living facilities, including permanent provisions for living, sleeping, eating, cooking and sanitation, as required by this code, for not more than one family, or a congregate residence for 16 or fewer persons.

RENEWABLE ENERGY by reference to HRS §269-91, renewable energy means energy generated or produced using the following sources:

1. Wind;
2. Sun;
3. Falling water;
4. Biogas, including landfill and sewage-based digester gas;
5. Geothermal;
6. Ocean water, currents and waves, including ocean thermal energy conversion;
7. Biomass, including biomass crops, agricultural and animal residues and waste, and municipal solid waste and other solid waste;
8. Biofuels; and
9. Hydrogen produced from renewable energy sources.

(12) Subsection C402.2.3 of the SECC is amended as follows:

C402.2.3 Thermal resistance of above-grade walls. The minimum R-value of materials installed in the wall cavity between framing members and continuously on the wall shall be as specified in Table C402.1 .3, based on framing type and construction materials used in the Wall assembly.

Exception: Continuous insulation for wood and metal framed walls are not required when one of the following conditions are met:

1. Walls have a covering with a reflectance of equal to or greater than 0.64 and/or overhangs with a projection factor equal to or greater than 0.3;
2. Walls have overhangs with a projection factor equal to or greater than 0.3. The projection factor is the horizontal distance from the surface of the wall to the farthest mast point of the overhang divided by the vertical distance from the first floor level to the bottom-most point of the overhang; or
3. Concrete, Concrete masonry units (CMU), and similar mass walls are six inches or greater in thickness.

The R-value of integral insulation installed in CMUs shall not be used in determining compliance with Table C402,1.3. Mass walls shall include walls:

1. Weighing not less than 35 psf (170 kg/rn2) of wall surface area.
2. Weighing not less than 25 psf (120 kg/m2) of wall surface area where the material weight is not more than 120 psf (1900 kg/rn3).
3. Having a heat capacity exceeding 7 Btu/ft2F (144 cage/rn2• K).
4. Having a heat capacity exceeding 5 Btulft2E (103 kJ/m2 K), where the material weight is not more than 120 pcf (1900 kg/rn3).

Exception: Concrete, CMU, and similar mass walls are six inches or greater in thickness.

(13) Subsection C402.4.1.2 of the SECC, is amended as follows:

C402.4.1.2 Increased skylight area with daylight responsive controls. The skylight area shall be permitted to be not more than five percent of the roof area provided daylight responsive controls complying with Section 0405.2.3.1 are installed in daylight zones under skylights.

Exception: Spaces where the designed general lighting power densities are equal to or less than 60 percent of the lighting power densities specified in Table 0405.2(1) or 0405.4.2(2).

(14) Subsection C403.2.4.2.4 of the IECC, adopted by the SECC, is amended to read as follows:

C403.2.4.2.4 Door switches. Opaque and glass doors opening to the outdoors in hotel and motel sleeping units, guest suites and timeshare condominiums shall be provided with controls that disable the mechanical cooling or reset the cooling setpoint to 90 degrees Fahrenheit or greater within five minutes of the door opening. Mechanical cooling may remain enabled if the outdoor air temperature is below the space temperature.

(15) Subsection C405.2 of the SECC, is amended to read as follows:

C405.2 Lighting controls (Mandatory).

Exception: Spaces that use 60 percent or less of designated watts per square foot are exempt from Sections 0405.2.2 (Time switch controls) and 0405.2.3 (Daylight-responsive controls).

(16) Subsection C406.3 of the SECC, is amended to read as follows:

C406.3 Reduced lighting power density. The total interior lighting power (watts) of the building shall be determined by using 80 percent of the lighting power values specified in Table 0405.4.2(1) times the floor area for the building types, or by using 80 percent of the lighting power values specified in Table 0405.4.2(2) times the floor area for the building type, or by using 80 percent of the interior lighting power allowance calculated by the Space-by-Space Method in Section 0405.4.2.

(17) Subsection C406.8 of the SECC, is amended to read as follows:

C406.8 Electric vehicle infrastructure. New residential multi-unit buildings that have fifty~~eight~~ or more parking stalls, and new commercial buildings that have ~~twelve~~ fifty or more parking stalls, shall be electric vehicle charger ready for at least ~~25~~ 10 percent of the parking stalls. As used in this section, "electric vehicle charger ready" means that sufficient wire, conduit, electrical panel service capacity, overcurrent protection devices and suitable termination points are provided to connect to a charging station capable of providing simultaneously an AC Level 1 charge per required parking stall for residential and multi-unit buildings. For new commercial buildings, at least ~~25~~10 percent of the parking stalls are required to be AC Level 2 charger ready. Charge method electrical ratings are provided below:

CHARGE METHODS ELECTRICAL RATING

Charge Method	Normal Supply Voltage (Volts)	Maximum Current (Amps – Continuous)	Supply power
AC Level 1	12OV AC, 1-phase 120V AC, 1-phase	12A 16A	120VAC/20A (12-16A continuous)
AC Level 1	208 to 240V AC, 1-phase	≤ 80A	208/240VAC/20-100A (16-80A continuous)

(18) Subsection C408.2.4.1 of the IECC, adopted by the SECC, is amended to read as follows:

C408.2.4.1 Acceptance of reports. Buildings, or portions thereof, shall not be considered acceptable for a certificate of occupancy until the code official has received a letter of transmittal from the building owner

acknowledging that the building owner or owner's authorized agent has received the Preliminary Commissioning Report.

(19) Subsection C4083.1 of the IECC, adopted by the SECC, is amended to read as follows:

C408.3.1 Functional testing. Prior to issuance of a certificate of occupancy, the licensed design professional shall provide evidence that the lighting control systems have been tested to ensure that control hardware and software are calibrated, adjusted, programmed and in proper working condition in accordance with the construction documents and manufacturer's instruction. Functional testing shall be in accordance with Sections C408.3.1.1 and C408.3.1.2 for the applicable control type.

(20) Subsection 0501.4 of the SECC is amended to read as follows:

C501.4 Compliance. Alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions and regulations for alterations, repairs, additions and changes of occupancy to, or relocation of, respectively, required by the ROH 1990, as amended.

(21) Subsection C503.3.1 of the SECC, is amended to read as follows:

C503.3.I Roof replacement. Roof replacements shall comply with Table C402.1.3 or C402.1.4 where the existing roof assembly is part of the building thermal envelope and contains insulation entirely above the roof deck.

Exception: The following alterations need not comply with the requirements for new construction, provided the energy use of the building is not increased. When uninsulated roof sheathing is exposed during alteration, two of the following shall be installed:

1. Table C402.3 (solar reflectance); Energy Star compliant roof covering;
2. Radiant barrier;
3. Attic ventilation via solar attic fans or ridge ventilation or gable ventilation; and/or
4. Two or more of the exceptions listed in Table 0402.3.

(22) Subsection R103.1 of the IECC, adopted by the SECC, is amended to read as follows:

R103.1 General. Construction documents and other supporting data shall be submitted to indicate compliance with this code. The construction documents shall be prepared, designed, approved and observed by a duly licensed design professional, as required by Chapter 464 of the HRS. The responsible design professional shall provide on the plans a signed statement certifying that the project is in compliance with this code.

Exception: Any building, electrical or plumbing work that is not required to be prepared, designed, approved or observed by a licensed professional architect or engineer, pursuant to Chapter 464, HRS. Specifications and necessary computations need not be submitted when authorized by the Building Official.

(23) Subsection R401.2 of the IECC, adopted by the SECC, is amended to read as follows:

R401.2 Compliance. Projects shall comply with one of the following:

1. Sections R401 .3 through R404;
2. Section R405 and the provisions of Sections R401 through R404 labeled "mandatory";
3. An energy rating index (ERI) approach in Section R406; or
4. The Tropical Zone requirements in Section R401.2.1.

(24) Subsection R401.2.1 of the SECC, is amended to read as follows:

R401.2.1 Tropical zone. Residential buildings in the tropical zone at elevations below 2,400 feet (731.5 m) above sea level must comply with this chapter by satisfying the following conditions:

~~1. Not more than one-half of the area of the dwelling unit is air conditioned.~~

~~2.~~1. The dwelling unit is not heated.

~~3.~~2. Solar, wind or another renewable energy source supplies not less than 90 percent of the energy for service water heating.

~~4.~~3. Glazing in conditioned space shall have a maximum solar heat gain coefficient as specified in Table R402.2.1.

(25) Table R402.2.1 of the IECC, adopted by the SECC is amended to read as follows:

Table R402.2.1. Window SHGC Requirements

Projection Factor of overhang from base of average window sill	SHGC
< 0.30	0.25
0.30 – 0.50	0.40
≥ 0.50	N/A

Exception: North-facing windows with pf > 0.20 are exempt from the SHGC requirement. Overhangs shall extend two feet on each side of window or to nearest wall, whichever is less.

5. Skylights in dwelling units shall have a maximum Thermal Transmittance (U-factor), as specified in Table R402.1.2.

6. Permanently installed lighting is in accordance with Section R404.

7. The roof/ceiling complies with one of the following options:

   a. Comply with one of the roof surface options in Table C402.3 and install R-13 insulation or greater; or

   b. Install R-19 insulation or greater.

If present, attics above the insulation are vented and attics below the insulation are unvented. Exception: The roof/ceiling assembly are permitted to comply with Section R407.

8. Roof surfaces have a minimum slope of one fourth inch per foot of run. The finished roof does not have water accumulation areas.

9. Operable fenestration provides ventilation area equal to not less than 14 percent of the floor area in each room. Alternatively, equivalent ventilation is provided by a ventilation fan.

10. Bedrooms with exterior walls facing two different direction have operable fenestration or exterior walls facing two different directions.

11. Interior doors to bedrooms are capable of being secured in the open position.

12. Ceiling fans or whole house fans are provided for bedrooms and the largest space that is not used as bedroom.

13. Jalousie windows shall have an air infiltration rate of no more than 1.2

cfm per square foot (6.1 L/s/m2).

14. Walls, floors and ceilings separating air conditioned spaces from non-air conditioned spaces shall be constructed to limit air leakage in accordance with the requirements in Table R402.4.1.1.

(26) Subsection R402.3.2 of the IECC, adopted by the SECC, is amended to read as follows:

R402.3.2 Glazed fenestration SHGC. Fenestration shall have a maximum solar heat gain coefficient as specified in Table R402.1.2. An area-weighted average of fenestration products more than 50 percent glazed shall be permitted to satisfy the SHGC requirements.

Exception: Dynamic glazing is not required to comply with this section when both the lower and higher labeled SHGC already comply with the requirements of Table R402.1.2.

(27) Table R402.1.2 of the IECC, adopted by the SECC, is amended and adding a footnote to read as follows:

Table R402.1.2. - Insulation and Fenestration Requirement by Component

Climate Zone 1 Floor R-Value – NR

Footnote:

j. Exemption R-values for mass walls are not required if mass walls have a coating with a reflectance of 0.64 or greater and/or walls have overhangs with a projection factor equal to or greater than 0.3.

(28) Subsection R403.5.5 of the IECC, adopted by the SECC, is amended to read as follows:

R403.5.5 Solar water heating. Residential single-family buildings shall use solar, wind or another renewable energy source for not less than 90 percent of the energy for service water heating.

Exception: If an architect or mechanical engineer licensed under Chapter 464, of the HRS, attests and demonstrates that (1) installation is impracticable due to poor solar resource; (2) ~~or~~ installation is cost-prohibitive based upon a life cycle cost-benefit analysis that incorporates the average residential utility bill and the cost of the new solar water heater system with a life cycle that does not exceed ~~fifteen~~ thirty years; (3)

a renewable energy technology system, as defined in HRS Section 235-12.5, is substituted for use as the primary energy source for heating water; or (4) demand water heater device approved by CSA International is installed, provided that at least one other gas appliance is installed in the dwelling. For the purpose of this section "demand water heater" means a gas-tankless instantaneous water heater that provides hot water only as it is needed., ~~then one of the following technologies advancing renewable energy shall be used for service water heating: 1) a grid-interactive water heater; 2) a heat pump water heater; or 3) a gas-powered water heater that is fueled by a source that is not less than 90 percent renewable. For the purpose of this section, 'grid-interactive water heater" means an electric resistance water heater fitted with grid-integrated controls that are capable of participating in an electric utility load control or demand response program.~~

(29) Subsection R403.6.2 of the IECC, adopted by the SECC, is amended to read as follows:

R403.6.2 Ceiling fans (Mandatory). A ceiling fan or whole house fan is provided for bedrooms and the largest space that is not used as bedroom.

(30) Subsection R404.2 of the SECC, is added to read as follows:

R404.2 Ceiling fans (Mandatory). A ceiling fan or whole-house fan is provided for bedrooms, provided the whole house mechanical ventilation system complies With the efficacy requirements of Table R403.6.1.

(31) Subsection R404.3 of the SECC, is amended to read as follows:

R404.3 Electric Vehicle Capability. In addition to what is required by the Electrical Code, a dedicated receptacle for an electrical vehicle must be provided for each residence which provides at a minimum, Level 1 service.

(32) Table Subsection R405.5.2(1) of the IECC, adopted by the SECC, is amended to read as follows:

Table R405.5.2(1) **SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS**		
BUILDING COMPONENT	**STANDARD REFERENCE DESIGN**	**PROPOSED DESIGN**
Heating Systems	Fuel type: Same as proposed design	As proposed

	Efficiencies Electric: Air-source heat pump with prevailing federal minimum standards Nonelectric furnaces: Natural gas furnace with prevailing federal minimum standards Nonelectric boilers: Natural gas boiler with prevailing federal minimum standards Capacity: Sized in accordance with Section R403.7	As proposed As proposed As proposed As proposed As proposed
Cooling Systems	Fuel type: Electric Efficiency: in accordance with prevailing federal minimum standards Capacity: Sized in accordance with Section R403.7	As proposed As proposed
Service Water Heating	Fuel type: Same a proposed design Efficiency: In accordance with prevailing federal minimum standards Use: Same as proposed design	As proposed As proposed Gal/day=30+(10x *Nbr*)

(33) Table R407.1 is added to the IECC, adopted by the SECC. Table R407.1 is added to read as follows:

Table R407.1 POINTS OPTION			
Walls		**Standard Home Points**	**Tropical Home Points**
Wood framed			
	R-13 Cavity Wall Insulation		
	R-19 Roof Insulation		
	R-19 Roof Insulation + Cool roof membrane1 or Radiant Barrier[3]		
	R-19 Roof Insulation + Attic Venting[2]		
	R-30 Roof Insulation		
	R-13 Wall Insulation + high reflectance walls[4]		
	R-13 Wall Insulation + 90% high efficacy lighting and Energy Star Appliances[5]		
	R-13 Wall insulation + exterior shading wpf=0.3[b]		
	Ductless Air Conditioner[7]		
	1.071 X Federal Minimum SEER for Air Conditioner		
	1.142 X Federal Minimum SEER for Air Conditioner		
	No air conditioning installed	Not applicable	2
	House floor area ≤ 1,000 ft^2		
	House floor area ≥ 2,500 ft^2	-1	-1
	Energy Star Fans[8]	1	1
	Install 1 kw or greater of solar electric	1	1
Metal Framed			
	R-13 + R-3 Wall Insulation	0	1
	R-13 Cavity Wall Insulation + R-0	-1	0
	R-13 Wall Insulation + high reflectance walls[4]	0	1
	R-13 Wall Insulation + 90% high efficacy lighting and Energy Star Appliances[5]	1	2

	R-13 Wall Insulation + exterior shading wpf-0.3[8]	0	1
	R-30 Roof Insulation	0	1
	R-19 Roof Insulation	-1	0
	R-19 + Cool roof membrane1 or Radiant Barrier[3]	0	1
	R-19 Roof Insulation + Attic Ventilation	0	1
	Ductless Air Conditioner[7]	1	1
	1.071 X Federal Minimum SEER for Air Conditioner		
	1.142 X Federal Minimum SEER for Air Conditioner		
	No air conditioning installed	Not applicable	2
	House floor area ≤ 1,000 ft^2		
	House floor area ≥ 2,500 ft^2	-1	-1
	Energy Star Fans[8]	1	1
	Install 1 kw or greater of solar electric	1	1

[1] Cool roof with three-year aged solar reflectance of 0.55 and 3-year aged thermal emittance of 0.75 or 3-year aged solar reflectance index of 64.
[2] One cfm/ft2 attic venting.
[3] Radiant barrier shall have an emissivity of no greater than 0.05 as tested in accordance with ASTM E-408. The radiant barrier shall be installed in accordance with the manufacterer's installation instructions
[4] Walls with covering with a reflectance of ≥ 0.64.
[5] Energy Star rated appliances include refrigerators, dishwashers, and clothes washers and must be installed for the Certificate of Occupancy
[6] The wall projection factor is equal to the horizontal distance from the surface of the wall to the farthest most point of the overhang divided by the vertical distance from the first floor level to the bottom most point of the overhang.
[7] All airconditioning systems in the house must be ductless to qualify for this credit.
[8] Install ceiling fans or whole-house fans in all bedrooms and the largest space that is not used as a bedroom.

(34) Subsection R501.4 of the IECC, adopted by the SECC, is amended to read as follows:

R501.4 Compliance. Alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions and regulations for alterations, repairs, additions and changes of occupancy to, or relocation of, respectively required by the Revised Ordinances of Honolulu 1990, as amended.

(35) Subsection R503.1.1 of the SECC, is amended by adding the following exception

and footnote to read as follows:

7. When uninsulated roof sheathing is exposed during alteration, a minimum of two of the following shall be installed:

   a. Energy Star compliant roof covering;

   b. Radiant barrier;

   c. Attic ventilation via solar attic fans or ridge ventilation or gable ventilation; or

   d. A minimum of two exceptions listed in C402.3.

Footnote: Shake roofs on battens shall be replaced with materials that result in equal or improved energy efficiency.

A BILL FOR AN ORDINANCE

SECTION 4. This ordinance takes effect 90 days after its approval.

INTRODUCED BY:

Ann Kobayashi (br)

DATE OF INTRODUCTION:

May 6, 2019
Honolulu, Hawaii

Councilmembers

From: CLK Council Info
Sent: Tuesday, September 03, 2019 10:30 AM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Dawn Lippert
Phone	8082375050
Email	policy@elementalexcelerator.com
Meeting Date	09-04-2019
Council/PH Committee	Council
Agenda Item	Bill 025
Your position on the matter	Support
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	Dear Chair Menor, Vice-Chair Waters, and Members of the Committee on Zoning, Planning, and Housing: I am submitting testimony in strong support of Bill 25, which regulates the design and construction of residential and commercial buildings for the effective use of energy through the adoption of the State Energy Conservation Code (2017), subject to local amendments by the City and County of Honolulu. I am a resident of the Diamond Head neighborhood, Council District 4. First, I applaud our City's leadership in this effort. Our existing building energy code is over thirteen years out of date. The proposed code revisions reflect the broad changes in technology, building materials, and best practices that account for Honolulu's unique island and building environment. For the next twenty years, our City can save nearly $1 billion in energy costs with these updated codes. This factor is essential to consider with our State's high cost of living. Secondly, with new housing development, this measure would ensure we equip new housing with either solar or high-efficiency water heaters that support our State's clean energy goals. It will end the loophole that has allowed recent housing projects to avoid putting in solar. Finally, Bill 25 helps Honolulu make the transition to zero-emission

vehicles by requiring that a certain percentage of new parking stalls be "EV-ready." This makes electric vehicles more accessible to residents, reduce the overall cost of our transition to clean transportation, and reaffirms our City's commitment to 100% renewable ground transportation by 2045.

Updating our building codes is crucial in reducing energy costs while increasing family health and comfort. For a more sustainable Honolulu, I urge you to pass Bill 25. Mahalo for the opportunity to testify.

Sincerely,
Dawn Lippert

Testimony Attachment	
Accept Terms and Agreement	1

IP: 192.168.200.67

City Council
City and County of Honolulu
September 4, 2019 at 10a.m.
Bill 25 (2019)

Aloha Chair Anderson, Vice Chair Kobayashi, and Members of the Council:

Tesla appreciates the opportunity to submit this testimony regarding Bill 25 (2019) which would modify the Honolulu Energy Code to establish an EV-ready infrastructure requirement. Absent convenient and widespread access to EV charging, the willingness of individuals to purchase an electric vehicle will be limited. Parking spaces where customers already park their vehicles for 8-10 hours, like at their place of residence or work, are ideal candidates for the deployment of charging infrastructure.

As discussed below, while Tesla supports the bill's intent, we believe it should be amended to include the proposed amendments by Vice Chair Kobayashi and Councilmember Manahan such that the EV- ready infrastructure deployed, whether in the residential or commercial context, can support Level 2 charging.

As Honolulu seeks to reduce its dependence on fossil fuels through transportation electrification, measures like Bill 25 (2019), which recognize that initial construction is a cost-effective and key opportunity to support access to EV charging, are of significant importance. A study conducted by Pacific Gas and Electric and Energy solutions in San Francisco found that retrofitting make-ready infrastructure is three to four times more expensive than deploying this same infrastructure as part of initial construction.[1] The relative costs of deploying EV infrastructure at initial construction versus retrofit are detailed in the table below.

	Per PEV Parking Space with Electrical Circuit		Total Incremental Cost of Building	
	New	Retrofit	New	Retrofit
Scenario A - 10 Parking Space Building, two PEV Parking Spaces	$920	$3,710	$1,840	$7,420
Scenario B - 60 Parking Space Building, 12 PEV Parking Spaces	$860	$2,370	$10,320	$28,440

[11] "Plug-In Electric Vehicle Infrastructure Cost-Effectiveness Report for San Francisco"; Energy Solutions and Pacific Gas and Electric, November 17, 2016; http://evchargingpros.com/wp-content/uploads/2017/04/City-of-SF-PEV-Infrastructure-Cost-Effectiveness-Report-2016.pdf

The benefits of deploying as part of initial construction has been recognized by a growing number of municipalities including the cities of Seattle, Vancouver, Atlanta, San Francisco, and Oakland, each of which have adopted a Level 2 EV-ready requirement. However, Tesla is very concerned that the residential and multi-unit dwelling requirement as drafted in this measure, which only directs the deployment of EV-ready infrastructure sufficient to support Level 1 charging, is inadequate to support the needs of EV drivers.

Level 1 charging, or "trickle charging", means charging an EV using a standard 120 volt outlet. The rate of charge associated with this is roughly 4 miles of range per hour of charging. This charging rate is impractical and would likely force EV drivers to supplement their home charging with another charging option or source. This necessarily complicates life with an EV and thus, in Tesla's view, will do nothing to promote or support a household's decision to purchase an EV, given that few if any customers will be willing to sacrifice anything in terms of convenience to do so. To the degree the intent of the proposed amendments is to ensure that buildings are constructed in a manner that can effectively support the decision of Honolulu residents to purchase an EV, this particular provision needs to be changed to require Level 2 charging.

Below is a comparison of the time it would take to charge some of the most commonly purchased EVs from a zero state of charge to full from Level 1 vs. Level 2 charging infrastructure:

		Time to Charge (Hours)	
Vehicle Make/Model	Range (miles)	Level 1	Level 2
Nisan Leaf - 62 kWh	226	57	9
Chevy Bolt	238	60	10
Tesla Model 3 - Standard Range	240	60	10

Notably, the time to fully charge an EV using Level 2 charging falls within the typical time that a vehicle would typically be parked on a daily basis, whether at home or at work.

It is especially important to get this right in the multi-unit residential context, where to date, limited access to charging renders EVs impractical for the vast majority of those Honolulu residents that do not live in single family housing. Unlike the case for those living in single family housing, occupants in multi-unit buildings do not typically have the authority or means to deploy charging infrastructure. Furthermore, as detailed above, the costs of retrofitting this infrastructure in an existing parking facility is extremely high. As a result, by limiting the residential and multi-unit building requirement to Level 1 charging, the proposed EV ready requirement will likely perpetuate the status quo, where EVs will continue to be a viable option for only a small segment of the population.

Tesla estimates that the cost difference between Level 1 and Level 2 EV-ready infrastructure is relatively small, on order of a few hundred dollars. When that differential is compared to the overall costs of constructing a new building or parking facility, it is truly de minimis. It seems more than reasonable to incur this modest upfront increase in costs, given the dramatically improved level of service provided by Level 2 charging and its ability to meaningfully support EV adoption.

To address Tesla's concerns the proposed language in Bill 25 relating to Subsection C406.8 should be modified as follows (underlined indicates additions, ~~strikethrough~~ indicates deletions):

C406.8 Electric vehicle infrastructure. New residential multi-unit buildings that have eight or more parking stalls, and new commercial buildings that have twelve or more parking stalls, shall be electric vehicle charger ready for at least 25 percent of the parking stalls. As used in this section, "electric vehicle charger ready" means that sufficient wire, conduit, electrical panel service capacity, overcurrent protection devices and suitable termination points are provided to connect to a charging station capable of providing simultaneously an AC Level ~~1~~ 2 charge per required parking stall ~~for residential and multi-unit buildings. For commercial buildings, at least 25 percent of the parking stalls are required to be AC Level 2 charger ready~~. Charge method electrical ratings are provided below:

CHARGE METHODS ELECTRICAL RATING

Charge Method	Normal Supply Voltage (Volts)	Maximum Current (Amps – Continuous)	Supply Power
~~AC Level 1~~	~~120V AC, 1-Phase~~ ~~120V AC, 1-Phase~~	~~12A~~ ~~16A~~	~~120VAC/20A~~ ~~(12-16A continuous)~~
AC Level 2	208 to 240V AC, 1-Phase	≤ 80A	208/240VAC/20-100A (16-80A continuous)

Thank you for the opportunity to provide testimony on this important measure.

HAWAII STATE ENERGY OFFICE
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

CARILYN O. SHON
CHIEF ENERGY OFFICER

235 South Beretania Street, 5th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-3807
Fax: (808) 586-2536
Web: energy.hawaii.gov

August 29, 2019

The Honorable Ikaika Anderson, Chair
and Members of Honolulu City Council
City Hall, 530 South King Street
Honolulu, Hawaii 96813

Dear Chair Anderson:

Thank you for the opportunity to testify in support of Bill No. 25, CD1 - Relating to the Adoption of the State Energy Conservation Code, the 2015 International Energy Conservation Code (IECC). The purpose of energy codes is to minimize occupants' energy costs while providing health and safe interior environments. The Hawaii State Energy Office strongly supports Bill No. 25, CD1 which includes the following important amendments, some of which reduce construction costs:

C402.2.3 Thermal Resistance of Above-Grade Walls. This amendment takes advantage of Hawaii's mild climate by substituting conventional exterior wall insulation with reflective coatings, shading and thermal mass. It may reduce construction costs while achieving the same resistance to radiant heat as conventional insulation.

C403.2.4.2.4 Door Switches. This amendment switches off air conditioning systems in hotel and similar facilities when lanai doors are left open. Hotels provide notification to guests.

C405.2 Lighting Controls. These provisions allow designers to reduce lighting wattage by 40 percent thereby gaining exemption from certain lighting controls and specified lighting power density. Materials costs are reduced while significantly reducing energy use.

C406.8 Electric Vehicle Infrastructure and R404.3 Electric Vehicle Capability. Requires that new multi-unit residential structures have at least 25 percent of their parking stalls "electric vehicle charger ready," and that residences include "a dedicated receptacle for an electric vehicle."

C503.3.1 Roof Replacement. Allows re-roofers to minimize heat gain with reflective roof membranes, radiant barriers or ventilation systems rather than installing expensive insulation.

R401.2.1 Tropical Zone. Hawaii designers may design residences with little or no air conditioning and prevent the sun's heat from entering homes via passive and inexpensive means. Construction costs are reduced and an optimized tropical home may use 48 percent less energy than a 2015 IECC-compliant air conditioned home.

R403.5.5 Solar Water Heating. This provision requires that residential single-family buildings shall use solar, wind or another renewable energy source for not less than 90 percent of the energy for service water heating.

R404.2 Ceiling Fans. Requires the installation of ceiling fans in bedrooms and one other major room or whole-house fans.

These amendments represent some of the most progressive energy efficient and forward-looking energy code provisions in the nation. Please contact Howard C. Wiig at 808-587-3811 or at howard.c.wiig@hawaii.gov with any questions.

Sincerely,

Carilyn O. Shon
Chief Energy Officer

Speaker Registration/Testimony

Name	Kevin Nishimura
Phone	8085945573
Email	knishimu@hawaiigas.com
Meeting Date	09-04-2019
Council/PH Committee	Zoning
Agenda Item	Bill 25
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	I oppose the language that is proposed for R403.5.5 Exception, that requires a gas-powered water heater option to be "fueled by a source that is not less than 90 percent renewable" The other two options, a grid-interactive water heater and a heat pump, both do not have a requirement to have fuel with any specified amount of renewable sources. This is not fair, not feasible, and just plain wrong; as it eliminates the gas-powered water heater option entirely, until such time that consumers have access to 90 percent renewable gas supply.
Testimony Attachment	
Accept Terms and Agreement	1

IP: 192.168.200.67

Honolulu City Council
530 S King St # 202
Honolulu, HI 96813
Wednesday, September 4, 2019

STATEMENT OF THE ILWU LOCAL 142 ON BILL 25– A BILL FOR AN ORDINANCE RELATING TO THE ADOPTION OF THE STATE ENERGY CONSERVATION CODE.

The ILWU Local 142 has strong concerns regarding Bill 25 which could negatively impact lower and moderate-income residents by eliminating natural gas water heaters and requiring the installation of solar hot water heaters.

First and foremost, the ILWU Local 142 strongly believes Hawaii and the rest of the nation needs to focus on addressing climate change. As our climate becomes warmer and our sea levels rise, a significant portion of the population will be at risk, species will become endangered and/or extinct and our economy will be in jeopardy. This is an urgent matter that needs serious attention.

That being said, natural gas for home water heaters is only a small component that has little impact on climate change in Hawaii. Hawaii's energy utilities are heavily dependent on fossil fuels which emit harmful C02's into our environment and contributes to the warming of our planet. First, we need to focus on reducing our dependency on petroleum which generates the majority of our electricity throughout the state. Natural gas and solar water heaters do just that by reducing our dependency on petroleum fossil fuels. Unfortunately, on cloudy and rainy days, solar hot water heaters utilize electricity generated by our petroleum power plants to heat water – something natural gas heaters don't have to worry about.

In addition, many families on Oahu and across the state live on small to moderate incomes and may have a difficult time affording the added cost of installing solar hot water simply because of an electrical or plumbing renovation or even a larger renovation. Hawaii's cost of living is extremely high, and this will be an added burden to many working families.

Lastly, the state already requires all new homes to install and utilize solar hot water – a law that has been in effect since 2010. This seems like the logical approach and will have less of an impact on families struggling to make ends meet.

For the reasons mentioned above, the ILWU Local 142 urges the Council to defer or amend Bill 25. Thank you for the opportunity to testify.

From: CLK Council Info
Sent: Tuesday, September 03, 2019 11:11 AM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Bob Harter
Phone	808-840-0551
Email	tarheelharters@juno.com
Meeting Date	09-04-2019
Council/PH Committee	Council
Agenda Item	Bill 25 (2019)
Your position on the matter	Comment
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	Aloha City and County of Honolulu Council, I have reviewed Bill 25 and it has me very concerned, even worried, about the over dependence of electrifying nearly everything on our Island. It seems like this Bill 25 will place us in a situation that will lead us to a single point of failure for disaster recovery. I believe for the safety of our Island, its residents and visitors we need to have a diversity of energy options, particularly firm energy (e.g. gas, oil, coal, etc.) critical to our resiliency. I believe if Bill 25, as it is currently written, will significantly undermine the necessary energy diversity we need on our Island. Further, this Bill 25, seems to take away energy options, to include back up/redundant/complementary firm energy options, for Island homeowners and mandates items that will make even more expensive the cost of housing, which is already nearly unattainable, for most of us locals. Please do not pass Bill 25 as written. Please look at what is happening in fellow island communities in the U.S. Virgin Islands, Puerto Rico and the Grand Bermuda Islands in the wake of Hurricane Dorian with the loss of electrical power. Please do not let Oahu have a single point of failure, let us have options. Thank you for reading my testimony. Bob Harter Kaneohe Resident
Testimony Attachment	

From: CLK Council Info
Sent: Tuesday, September 03, 2019 11:15 AM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Rick
Phone	8083517523
Email	rmartin@hawaiigas.com
Meeting Date	09-04-2019
Council/PH Committee	Council
Agenda Item	Bill 25
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	I oppose the language that refers to "gas powered water heater must be fueled by a source that is not less than 90 percent renewable". It needs to state that "a percentage of the gas is a renewable" and not state that it has to be 90%.
Testimony Attachment	
Accept Terms and Agreement	1

IP: 192.168.200.67

Testimony before the Honolulu City Council
City and County of Honolulu

Written Testimony in Support

Bill 25 (2019), CD1
Relating to the Adoption of the State Energy Conservation Code

By Michael Colón
Manager, Electrification of Transportation Department
Hawaiian Electric Company, Inc.
and
Carlos Perez Loriga
Director, Customer Solutions
Hawaiian Electric Company, Inc.

September 4, 2019
10:00 a.m.
City Council Chamber at Honolulu Hale

Chair Anderson, Vice Chair Kobayashi, and Members of the council,

Hawaiian Electric Company, Inc. ("Hawaiian Electric") is writing in support of Bill 25 (2019), CD1 which is proposing to adopt the State Energy Conservation Code with county amendments to regulate the design and construction of residential and commercial buildings. Hawaiian Electric Company is writing in support of Bill 25 (2019), CD1 for the following reasons: (1) Subsection R403.5.5 which would allow certain exceptions to the requirement that residential single-family buildings use solar, wind or another renewable energy source for not less than 90 percent of the energy for service water heating; and (2) Subsection C406.8 relating to Electric vehicle infrastructure, which seeks to integrate clean transportation planning with large residential and commercial development, by requiring a portion of available parking stalls be electric vehicle (EV) charger ready. These two provisions are working toward a cleaner renewable future for Honolulu and the State of Hawaii.

In Subsection R403.5.5 Solar Water Heating -- this bill is proposing to provide an exception if the installation of a solar water heater proves to be impractical due to poor solar resource or is cost-prohibitive based upon a life cycle cost-benefit analysis. Furthermore, the exception allows for the use of other technologies that advance renewable energy for service water heaters; in particular, the exception offers the option to use grid-interactive water heaters fitted with controls that would also enable customers to participate in Hawaiian Electric Company's demand response programs while helping the State achieve its renewable goals. As water heaters are one of the highest energy consuming appliances, the ability to control such load through Demand Response will create an opportunity for customers to directly participate in the reliability of our grid while enabling greater renewable energy integration in the State. For these reasons, Hawaiian Electric supports the proposed language in Subsection R403.5.5.

In addition, Hawaiian Electric Company supports Subsection C406.8 Electric vehicle infrastructure – this subsection proposes Electric Vehicle infrastructure for new residential multi-unit buildings and new commercial buildings meeting certain criteria, commonly known as EV charger readiness. This bill has the potential to make a big impact on the availability of EV charging infrastructure, particularly in areas of high population density. These areas are typically ideal locations for EVs in that residents typically have shorter driving distances than those living in less dense, but more distant locations from the city center. Existing commercial locations and multi-family buildings face expensive retrofits to their parking facilities to be EV ready. Various opposition testimony has suggested that the costs to include new EV ready infrastructure will add cost to construction projects, however such costs are on average over four times higher

if installed as a retrofit, based on study data.[1] Thus, proactive planning to incorporate EV charging into future building projects will keep overall costs down in the long run. Honolulu has an opportunity to join over 19 states, counties, and municipalities that have already adopted some form of EV ready building code requirements nationwide.

Providing increased access to EV charging at workplaces, commercial locations and multi-family buildings are all key priorities identified in the Companies' Electrification of Transportation Strategic Roadmap. These provisions related to EV charging will continue the tremendous progress that the state has made towards a cleaner and more sustainable transportation future.

Accordingly, the Hawaiian Electric Company support Bill 25 (2019), Proposed CD1. Thank you for this opportunity to testify.

[1] http://evchargingpros.com/wp-content/uploads/2017/04/City-of-SF-PEV-Infrastructure-Cost-Effectiveness-Report-2016.pdf

From: CLK Council Info
Sent: Tuesday, September 03, 2019 11:42 AM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	EDWIN SAWA
Phone	8085945661
Email	esawa@hawaiigas.com
Meeting Date	09-04-2019
Council/PH Committee	Council
Agenda Item	Bill 25
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	I oppose the proposed language that a gas-powered water heater must be "fueled by a source that is not less than 90% renewable". Are the other options grid-interactive water heater and heat pump water heater also required to be "fueled by a source that is not less than 90% renewable"?
Testimony Attachment	
Accept Terms and Agreement	1

IP: 192.168.200.67

BOMA HAWAII
Building Owners and Managers Association

"Advancing the Commercial Property Management Industry through Education, Networking and Advocacy"

Testimony to the
Honolulu City Council

10:00 a.m., September 4, 2019

RE: Bill 25 Relating to City Energy Conservation Code

Aloha Chair Anderson, Vice Chair Kobayashi, and members of the Committee:

We are testifying on behalf of the Building Owners and Managers Association of Hawaii, a trade organization focused on actively and responsibly representing the commercial real estate industry through the collection, analysis and communication of information and through professional development. BOMA Hawaii is a leader in promoting energy efficient buildings and strongly supports energy efficient alternatives transportation.

It has been estimated that more than 500,000 electric vehicles are now on the road in the United States, and this is only expected to grow. As plug-in cars have become more visible on the nation's highways and local streets, there has also been a corresponding need for electric vehicle charging stations. This emerging need is creating a marketplace demand. Many building owners have installed EV charging stations and have successfully used them as a profit center as well as an amenity to attract new business and/or new tenants. Others are reluctant to take on the cost (installation cost, lost revenue from lost parking spaces, etc.), ongoing maintenance and management responsibilities, and liability. Where building owners can balance the benefits and potential draw backs, and where it makes economic sense, we believe that property owners will move forward to meet the need, without federal, state or local mandates.

We respectfully oppose the proposed 25% EV charging station-readiness mandate unless the measure is amended to include incentives to promote adoption and implementation.

We want to contribute positively to the discussion about promoting and incentivizing the construction of parking stations ready to be equipped with electric vehicle charging stations. We look forward to serving as a resource to the Council's subject matter committees on this bill and appreciate the opportunity to testify.

BOMA Hawaii • bae@bomahawaii.com • 808-447-1840 • 1099 Alakea Street Suite 2530 • Honolulu HI 96813

HAWAIʻIGAS
THE CLEAN ENERGY COMPANY

Testimony to the Honolulu City Council
Wednesday, September 4, 2019 10:00 a.m.
City Council Chamber, Honolulu Hale

RE: Bill 25 (2019) - Relating to the Adoption of the State Energy Conservation Code

Chair Anderson, Vice Chair Kobayashi and members of the Council,

My name is Jeffrey T. Ono, I am an attorney in private practice and previously served as the State Consumer Advocate from January 2011 to August 2016. Today, I am here in my capacity as a member of the Hawaii Gas Board of Directors.

Hawaii Gas supports the City & County of Honolulu's (City) and the State's ambitious climate goals and net-zero carbon goals. However, we are concerned with the impact Bill 25 has on consumer choice. This is why I am testifying **in opposition** of Bill 25.

Hawaii Gas is deeply committed to providing clean and affordable energy options for our State. The propane, natural gas, renewable natural gas (RNG), and hydrogen Hawaii Gas supplies to customers help lower overall greenhouse gases and provide reliable, clean and affordable energy options for Hawaii in all sectors - including government, health care, commercial, and residential.

Last year, in partnership with the City's Department of Environmental Services, Hawaii Gas launched the State's first RNG project at the Honouliuli Wastewater Treatment Plant (HWWTP). RNG is helping to lower the reliance on fossil fuels and is reducing the City's HWWTP emissions by the equivalent of 400 cars annually. This project generates $1.6 million in new revenue for the City's Sewer Fund, since Hawaii Gas now purchases a sewage byproduct to repurpose a combustible pollutant that otherwise would emit more carbon dioxide.

Bill 25 attempts to impose a requirement that gas water heaters for new construction must use 90 percent renewable gas, which is currently unavailable in Hawaii.

To address this section of Bill 25, we propose the following amendments:

> Amending item (28) to read:
> Adding Subsection R403.5.5. Subsection R403.5.5 to read:
> **R403.5.5 Solar water heating**. New residential single-family buildings must use solar, wind or another renewable energy source for not less than 90 percent of the energy for service water heating.

HAWAI'I GAS
THE CLEAN ENERGY COMPANY

Exception: If an architect or mechanical engineer licensed under HRS Chapter 464 attests and demonstrates that: (1) installation is impracticable due to poor solar resource; (2) installation is cost-prohibitive based upon a life cycle cost-benefit analysis that incorporates the average residential utility bill and the cost of the new solar water heater system with a life cycle that does not exceed thirty years; (3) a renewable energy technology system, as defined in HRS Section 235-12.5, is substituted for use as the primary energy source for heating water; or (4) demand water heater device approved by CSA International is installed, provided that at least one other gas appliance is installed in the dwelling. For the purpose of this section, "demand water heater" means a gas-tankless instantaneous water heater that provides hot water only as it is needed.

Though it may take us time, much like HECO and other energy providers, we continue to work towards the goal of renewable gas. Given today's technology, there is no cost-effective means for Hawaii Gas to achieve 90% renewable gas in the short term. We cannot expect that a one-sided solution will fit all energy needs in a state that has no intrastate or interstate energy grid to draw energy from when there is an outage or disaster.

An objective and responsible evaluation of all energy options to reduce carbon emissions is needed. For these reasons, I respectfully request the Committee adopt the proposed amendments provided for Bill 25.

Thank you for the opportunity to testify.

Sincerely,

Jeffrey T. Ono, Esq.
Board of Directors, Hawai'i Gas

From: CLK Council Info
Sent: Tuesday, September 03, 2019 12:23 PM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Laurie Chun
Phone	808.228.0977
Email	alchunhi@gmail.com
Meeting Date	09-04-2019
Council/PH Committee	Council
Agenda Item	Bill 25
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	I oppose Bill 25 as it is written. Hawaii's goal is 50% renewable by 2045. Why is this bill 90% in 2019? This makes no sense. You are basically giving the people of Hawaii NO options. PEOPLE WANT AND SHOULD HAVE OPTIONS. YOU ARE TYING OUR HANDS TO UNREASONABLE CRITERIA. I am a firm believer of options. especially during emergency situations. During recovery we cannot and shouldnt depend on one energy options. electricity/PV which is basically electricity. When a big storm or hurricane does a direct hit to Oahu, of course the electric power plants will shut down and all the PV panels blow away. Do you really want 100% of the population NOT have power. DIVERSITY!!!! Continue to work towards our collective goal of 50% renewable by 2045. BUT ALLOW OPTIONS! ALLOW DIVERSIFICATION. ALLOW CHOICES. PLEASE BE REASONABLE. BILL 25 AS WRITTEN SHOULD N O T pass. DO NOT PASS THIS BILL.
Testimony Attachment	
Accept Terms and Agreement	1

IP: 192.168.200.67

From: CLK Council Info
Sent: Tuesday, September 03, 2019 12:44 PM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Ryan Yoshida
Phone	8083418044
Email	ryanyosh@gmail.com
Meeting Date	09-04-2019
Council/PH Committee	Council
Agenda Item	Bill 25
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	I oppose the language of this bill that only allows me to install a "gas-powered water heater" if it is "fueled by a source that is not less than 90 percent renewable."
Testimony Attachment	
Accept Terms and Agreement	1

IP: 192.168.200.67

R

blue planet FOUNDATION

CITY COUNCIL
City and County of Honolulu
September 4, 2019, 10:00 A.M.
(Testimony is 10 pages long)

TESTIMONY IN SUPPORT OF BILL 25 (2019) CD1, WITH SUGGESTED AMENDMENTS
Relating to the adoption of the State Energy Conservation Code

Chair Anderson, Vice Chair Kobayashi, and Members of the City Council:

Blue Planet Foundation strongly supports Bill 25 (2019) CD1, a measure to modernize the City & County of Honolulu's (Honolulu's) building energy code. The proposed bill adopts a revised version of the Hawai'i Energy Code for Honolulu. These revisions would update Honolulu's existing building energy code—which is over thirteen years out of date—to increase occupant health and comfort while reducing energy use. The proposed code revision reflects broad changes in technology, building materials, and best practices, while considering Honolulu's unique island and building environment. ***We respectfully offer two proposed amendments on page 8 of our testimony to better "future-proof" new buildings to handle the rapid increase in zero emission vehicles.***

Blue Planet Foundation is a Hawai'i-based nonprofit organization. We work to clear the path for local, clean, renewable power. Through our advocacy for clean energy adoption, we seek to make our communities stronger, our energy more secure, our environment healthier, and our economy more robust. We appreciate Honolulu's growing leadership on clean energy issues.

As detailed below, the building energy code update proposed in Bill 25 CD 1 is:

- enormously cost-effective for residents and business owners on O'ahu;
- consistent with the state's very strong policy directives in favor of energy conservation; and
- flexible to make compliance easier for builders.

The Code Updates Support the State's Energy Mandates in a Cost-Effective Manner

Energy efficiency is the most cost-effective energy resource available in the state, costing a fraction of fossil fuel-powered electricity.[1] The anticipated energy savings arising from the 2015

[1] Energy savings delivered by the state's Hawai'i Energy program in 2016 cost 2.06 cents per kWh. *See Hawaii Energy 2014 Annual Report, available at*

IECC (International Energy Conservation Code) were tabulated in a May 2016 Report prepared for the Department of Business, Economic Development & Tourism ("DBEDT").[2] When translated into dollars, the billions in savings plainly illustrate the enormous benefit of the proposed amendments.

Statewide Savings	2016	2026	2030	2036
MWh	12,962	1,083,590	1,991,059	4,702,738
$	**$4,000,000**	**$337,000,000**	**$619,000,000**	**$1,463,000,000**

(Note: energy cost savings calculated here utilize the average retail cost of electricity over the past five years;[3] this provides a conservative estimate of cost savings, because it does not factor a potential rise in energy prices.)

Extrapolating the savings for O'ahu based on the percentage of energy used on the island versus statewide energy use, **the estimated 20-year savings for O'ahu is over $971 million under the proposed building energy code revisions (approximately $318 million in residential energy savings and $653 million in commercial energy savings).**

The substantial savings resulting from reduced energy use dwarf the associated costs. In its February 2016 report, the Pacific Northwest National Laboratory stated: "The 2015 IECC provides cost-effective savings for residential buildings in Hawai'i. Moving to the 2015 IECC from the 2006 IECC base code is cost-effective for residential buildings in all climate zones in Hawai'i."[4] Moreover, we understand that this cost-effectiveness may be *even higher* for many residential buildings in Hawai'i, where immediate cost savings can be obtained via lower construction costs *and* lower energy costs by utilizing the particularly important portions of the code applicable to the tropical zone. In such instances, the "payback" period would be immediate.

Energy Conservation is a Bedrock Policy of the State

The energy landscape has shifted dramatically in the last decade. In 2015, Hawai'i adopted the nation's first 100% renewable energy mandate. Meanwhile, as Hawai'i and other places around the globe have made smarter energy a priority, technologies for energy efficiency and other demand-side management strategies have progressed rapidly alongside.

---

https://hawaiienergy.com/images/resources/ProgramYear2016_AnnualReport.pdf. Even with today's relatively low oil prices, electricity from oil-fired power plants costs around seven times more. *See DBEDT Monthly Energy Trends, available at* http://dbedt.hawaii.gov/economic/energy-trends-2/.

[2] *See* The Cadmus Group, Inc., *Energy Savings Forecast for the 2015 Int'l Energy Cons. Code with Haw. Amendments* (prep'd for DBEDT, May 2016), *available at* https://energy.hawaii.gov/wp-content/uploads/2016/07/Energy-Savings-Forecast.pdf.

[3] *See* DBEDT Monthly Energy Trends.

[4] Pac. Northwest Nat'l Lab., *Cost-Effectiveness Analysis of the Residential Provisions of the 2015 IECC for Hawaii* (prep'd for the U.S. Dept. of Energy by, Feb. 2016), *available at* https://www.energycodes.gov/sites/default/files/documents/HawaiiResidentialCostEffectiveness_2015.pdf

These policy and technical advancements have left a gap between the existing code (based on the IECC of 2006) and today's energy realities. The proposed 2015 update in Bill 25 CD1 will take important steps to narrow the gap.

In a state with no indigenous fossil fuels, it makes sense that energy conservation is a core principle. Indeed, the importance of energy stewardship and efficiency is directly embedded within Hawai'i's constitution:

> For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, **including . . . energy sources**, and **shall promote the development and utilization of these resources in a manner consistent with their conservation** and in furtherance of the self-sufficiency of the State.[5]

Similarly, state lawmakers have stated that planning for the state's infrastructure shall be directed toward the achievement of objectives that include: "Sequester more atmospheric carbon and greenhouse gases than emitted within the State as quickly as practicable, but no later than 2045";[6] and "Increased energy security and self-sufficiency through the reduction and ultimate elimination of Hawai'i's dependence on imported fuels for electrical generation and ground transportation."[7]

To achieve these objectives, it is the official policy of the state to promote energy conservation through measures such as: "**Adoption of energy-efficient practices and technologies**" and "**Increasing energy efficiency and decreasing energy use in public infrastructure.**"[8]

These constitutional and legislative policy directives in favor of energy conservation strongly support Bill 25 CD1 to modernize the Honolulu building energy code.

The Code Updates Provide Compliance Flexibility to Builders

Many of the building energy code amendments in the proposed energy code update address Hawai'i's tropical environment. Further, they provide flexibility and options to builders to comply with the code, reducing construction costs and making compliance easier. Specifically:

- Walls of residential and commercial buildings are exempt from expensive exterior insulation requirements when they are shaded or have light-colored exterior coatings.

[5] Haw. Const. art. XI, § 1 (emphasis added).
[6] Hawai'i Revised Statutes (HRS) § 225P-3(a).
[7] HRS § 226-18(a).
[8] HRS § 226-18(c)(4) (emphasis added).

- Mass walls six inches and thicker in commercial buildings will not be required to have insulation. The national code requires R-5.7 continuous insulation, which would add substantially to the cost of construction.

- Lighting systems in commercial buildings may be designed to 70% of 2015 IECC lighting power density in lieu of installing complex daylighting and dimming systems which add to design, material and labor costs. The 70% option reaps greater energy savings than would the two control systems.

- Roof replacements in commercial buildings may be done with solar reflectance, attic ventilation or radiant barriers, substantially reducing construction costs compared to national code requirements.

- Homes will not be required to insulate floors to R-13, substantially reducing construction costs.

- Re-roofed homes will be allowed to comply with the options of ENERGY STAR roof coverings, radiant barriers, or attic ventilation in lieu of more expensive insulation requirements.

- The Tropical Code option section is designed for homes with no air conditioning or minimal air conditioning. The design eliminates the requirement for tight home construction and minimizes wall and roof insulation requirements. The point system rewards design promoting cross ventilation and large overhangs over walls and windows and other passive design features, lowering construction costs. An optimized Tropical Code home, compared to an air-conditioned home, reduces energy by as much as 48%.

The Code Makes Sensible Additions to Honolulu's Building Energy Code

In addition to the myriad energy saving additions incorporated in the updated IECC 2015 building energy code (as proposed for Honolulu), Blue Planet Foundation appreciates the inclusion of the following energy upgrades in this proposed ordinance:

- Sub-metering is required in commercial tenant spaces, providing more visibility into energy use for tenants and enabling them to take better control of their energy finances.

- Lanai doors in hotel and similar buildings shall include a switch that turns off the air conditioning if the door is not closed. This reduces energy costs and prevents warm moist air from coming into contact with cold surfaces, potentially causing condensation, mold, and health issues.

Bill 25 CD1 Wisely Provides High-Efficiency and Renewable Water Heater Options

Solar water heating is recognized as an incredibly efficient—and cost-saving—strategy for most homes. Since 2010, the state has required solar water heating in almost all new homes. But this law has a variance process for rare exceptions where solar just doesn't work. Unfortunately, this variance has been abused by developers, despite the legislature's clear intent that variances "will be rarely, if ever, exercised or granted." Consequently, nearly half of new homes proposed or being built today on O'ahu include fossil-fuel gas water heaters. Thousands of homes on the hot Ewa Plain of O'ahu are slated to be built with gas water heaters, locking future homeowners into higher energy costs over years of home ownership. Instead of being part of our clean energy future, these homes will contribute to climate change for decades into the future.

Bill 25 CD1 corrects the solar water loophole, ensuring that new homes built today come equipped with water heaters powered by the sun (or another renewable source), or—if a renewable source isn't cost effective—a water heater that works as a heat pump, a "smart" grid-interactive water heater, or a water heater that uses at least 90% renewable gas. Again, if a solar- or renewable-powered water heater does not make sense economically—based upon a lifecycle cost-benefit analysis that incorporates the average residential utility bill and the cost of the new solar water heater system with a lifecycle that does not exceed fifteen years—then one of the following technologies advancing clean energy may be used instead:

> *Heat pump water heater.* A heat pump uses electricity to move heat from one place to another (like a refrigerator operating in reverse) rather than generating its own heat like a traditional electric water heater. This makes heat pumps two to three times more efficient, according to the Department of Energy (DOE). Heat pumps can also work to help cool homes. According to the DOE, a heat pump water heater can save an O'ahu household of four people nearly $1,000 per year on their electric bill.
>
> *Grid-interactive water heater (GIWH).* A GIWH is a smart water heater that uses intelligent controls that are capable of interacting with and participating in utility load control or demand response programs. This allows the water heater to be an asset on the utility grid by smoothing out electricity usage and increasing the use of variable renewable energy. A local company, Shifted Energy, has already deployed hundreds of GIWH systems across O'ahu.
>
> *Renewable gas water heater.* A renewable gas water heater would heat water using no less than 90% renewable gas fuel. This could be natural gas or methane produced from renewable sources (such as biomass or methane from wastewater treatment plants or landfills), or hydrogen gas developed from renewable sources.

This addition to the proposed building energy code update provides flexibility to developers while ensuring that future homes will be built with high-efficiency or renewable water heaters.

Bill 25 CD1 Helps Make Electric Vehicles More Accessible to Residents

Blue Planet Foundation strongly supports the inclusion of a limited "EV-ready" requirement for new commercial and multi-family residential construction in Bill 25 CD1. This is an important first step to lowering the overall cost of our transition to electrified transportation and make electric vehicles more accessible to O'ahu residents. *We do, however, encourage the Council to strengthen this provision in Bill 25 CD1 (please see our proposed amendment at the end of this testimony).*

Electric vehicles (EV) are the fastest growing segment of new cars in Hawai'i. Over the past year (May 2018 – May 2019), EV registrations on O'ahu increased by over 30%, while registrations of gasoline-powered vehicles grew only 0.1 percent.[9] We expect over 10,000 EVs registered statewide by the end of this year—a number that is expected to grow exponentially as new EV models with longer ranges and lower prices hit the market.

Electric vehicles will play an integral role in Hawai'i's clean energy future. While EVs that use the existing electricity grid to charge still use mostly fossil fuel, they use that fuel more effectively than burning fuel directly in a typical gasoline engine. This is why EVs are much less expensive to "fuel" per mile than their gasoline counterparts. Further, by using stored electrical energy, EVs can take advantage of intermittent solar, wind, and other clean energy resources. Most vehicles sit idle over 22 hours of the day, so they can become *de facto* energy storage devices if their batteries are plugged into the grid when they are not in use. With smart grid infrastructure in place, EVs become an essential component to electricity load and clean energy resource balancing—in addition to providing clean mobility solutions for Hawai'i residents.

Still, over 600,000 gasoline-powered vehicles are on O'ahu's roads—and from them comes nearly five million metric tons of climate-changing carbon pollution. What's worse, while O'ahu has made decent progress in reducing its carbon emissions from the electricity sector, emissions from ground transportation have been increasing in recent years.

The International Energy Agency has found that "the availability of chargers emerged as one of the key factors for contributing to the market penetration of EVs."[10] Unlike gasoline car owners, charging behavior for EV owners indicates that more than 80% of EV drivers charge their cars at home or at work.[11] In addition, a large share of the Honolulu's population lives in high density, multi-family residential buildings. The vast majority of parking facilities currently lack EV chargers.

By ensuring that we are "future-proofing" new construction projects, this measure is an important step toward increasing electric vehicle charging options for those who don't have access to charging at home or at work.

---

[9] DBEDT Monthly Energy Trends, June 2019 (http://dbedt.hawaii.gov/economic/energy-trends-2/).
[10] *Global EV Outlook 2017,* https://www.iea.org/publications/freepublications/publication/GlobalEVOutlook2017.pdf.
[11] *Id.*

Honolulu can expect more residents to choose EVs over gasoline vehicles as prices decrease. Battery costs have fallen precipitously over the past several years so that in many cases, the total cost of ownership for EVs is lower than for gasoline vehicles. Experts expect battery prices to continue to fall and as automakers increase the number of models and volume of EVs in the next few years, the upfront cost of EVs is expected to reach upfront cost parity with gasoline vehicles by 2024.[12]

In part due to falling costs and increasing consumer demand, and in part due to government policies supporting EVs, nearly all of the world's leading automakers have announced aggressive strategies and investments in EVs during the past two years.

The most challenging aspect of EV charger installation is the common lack of electrical capacity and distributed subpanels to support broad deployment of charging infrastructure. **By choosing not to install the wiring and conduit upfront in new construction, developers are forcing tenants to pay for expensive retrofit costs to upgrade power capacity and wiring to their parking stalls.**

Studies have shown that **installing EV infrastructure at the time of construction can be 91% less expensive than post-construction retrofits**, and per stall installation costs can be reduced through economies of scale.[13] Vancouver, BC, found that the average cost of adding charging infrastructure during construction was about $300 (CAD) per stall compared to an estimated $3,300 for a later retrofit.

While this bill would not require the installation of the actual EV charging infrastructure, it would require that the power capacity and conduit be set up during construction, which would dramatically reduce retrofit costs at the time of charger installation, creating cost savings downstream for residents and tenants.

Cities around North America are adopting EV-ready requirements for commercial and residential new construction. Seattle, San Jose, Atlanta, San Francisco, and Oakland have adopted requirements for a certain percentage of stalls to be ready for Level 2 charging. Vancouver, British Columbia, now requires that 100% of new parking stalls be built ready for EV chargers. Honolulu—with the second highest adoption of EVs per capita nationwide—should implement a similar policy.

Electric vehicles are better for the environment and the economy and can help O'ahu reach its renewable energy and transportation goals. The time has come when Honolulu residents want to purchase electric vehicles but need convenient and affordable charging options. An EV-ready requirement will ensure that the EV charging infrastructure network necessary to support the

---

[12] *See* Bloomberg New Energy Finance, https://bnef.turtl.co/story/evo2018.

[13] *See* http://evchargingpros.com/wp-content/uploads/2017/04/City-of-SF-PEV-Infrastructure-Cost-Effectiveness-Report-2016.pdf.

influx of electric vehicles can be installed more efficiently and cost-effectively in new construction projects. It will provide new EV owners—particularly those that will live in new multi-family residential buildings—with the confidence that they will be able to access charging at home, at the workplace, and in public spaces.

SUGGESTED AMENDMENTS

Blue Planet Foundation respectfully requests that Councilmembers consider two amendments to strengthen Bill 25 CD1 to better "future-proof" new multi-family homes and buildings to handle the rapid increase in zero emission vehicles:

1. First, we ask that the provision in Bill 25 CD1 for EV-ready infrastructure be amended to **require Level 2 EV-ready infrastructure** instead of Level 1 for multi-family residential construction with over eight parking stalls; and
2. Second, we suggest that the requirement for Level 2 EV-ready parking stalls to applied to **all new parking stalls** in multi-family and commercial buildings.

The current draft of Bill 25 CD1 requires that residential multi-family dwellings (with more than eight parking stalls) include at least 25% EV-ready stalls—but only equipped to handle Level 1 (or slow) charging infrastructure. This is woefully inadequate for meaningful vehicle charging and significantly reduces the opportunity to use vehicle charging for utility demand response or load control programs. Further, the current provision in Bill 25 CD1 is a departure from the EV-ready requirements that are increasingly being adopted around the country, which are standardized around Level 2 charging.

Level 1 charging, or "trickle charging," means charging an EV using a standard 120-volt outlet. The rate of charge associated with this is roughly four miles of driving range per hour of charging. Below is a list of the most commonly purchased EVs and the associated charging time for a full charge from a Level 1 charger:

- Nissan Leaf – 1.7 to 2.6 days
- Chevy Bolt – 2.5 days
- Tesla Model 3 – 2.5 to 3.1 days

These charging times are impractical for most drivers and would likely lead to unnecessary cost for residents to later upgrade the electrical equipment to handle faster charging. To the degree the intent of the proposed EV-ready amendment is to ensure that buildings are constructed in a manner that can effectively support the decision of Honolulu residents to purchase an EV, this particular provision needs to be changed to require Level 2 charging.

Blue Planet Foundation also supports expanding this EV-ready requirement from 25% of new stalls to 100% of new parking stalls. With the rapid rate of change in the adoption of EVs, we expect that most new cars sold in Hawaii will be electric or hybrid within a decade. Yet Bill 25 CD1 as currently drafted only envisions 25% of new stalls needing future chargers. It is also unclear how these stalls will be allocated to future homeowners, tenants, or renters—will those

who would like to install an EV charger be able to access the one-in-four stalls that are EV-ready? This measure should reflect and anticipate the future where nearly all vehicles are zero emissions. This is particularly important given the slow of pace of updating Honolulu's building energy code. Failure to do so will lead to unnecessary expense in retrofitting relatively recent buildings with what will soon be commonplace amenities.

This is also an issue of equity. It's likely that the initial group of individuals purchasing EVs will be more affluent than latter adopters—this holds true for many innovations, as they are initially more expensive. They will be positioned to take advantage of the 25% of stalls that are EV-ready. But what about later adopters who are less affluent? this policy may have the effect of burdening these later EV adopters with the high costs of retrofitting to install EV infrastructure in already completed buildings. Simply requiring that all stalls are EV-ready avoids this potential inequity.

Requiring that all new parking stalls be EV-ready is not without precedent. Again, the city of Vancouver, BC, passed a law updating their four-year-old EV-ready requirement from 20% of new residential stalls to 100% of new stalls.[14] The law took effect January 1 of this year. Since 2014, existing requirements have resulted in 20,000 electric vehicle-ready stalls in buildings.[15] Other cities are considering similar 100% EV-ready policies.

To accomplish this, Blue Planet Foundation requests that the proposed language in Bill 25 CD1 relating to Subsection C406.8 should be modified as follows (underlined indicates additions, ~~strikethrough~~ indicates deletions):

> C406.8 Electric vehicle infrastructure. All parking stalls in n~~N~~ew residential multi-unit ~~buildings that have eight or more parking stalls,~~ and new commercial buildings ~~that have twelve or more parking stalls,~~ shall be electric vehicle charger ready ~~for at least 25 percent of the parking stalls~~. As used in this section, "electric vehicle charger ready" means that sufficient wire, conduit, electrical panel service capacity, overcurrent protection devices and suitable termination points are provided to connect to a charging station capable of providing simultaneously an AC Level ~~1~~ 2 charge per ~~required~~ parking stall ~~for residential and multi-unit buildings. For commercial buildings, at least 25 percent of the parking stalls are required to be AC Level 2 charger ready~~. Charge method electrical ratings are provided below:

CHARGE METHODS ELECTRICAL RATING

Charge Method	Normal Supply Voltage (Volts)	Maximum Current (Amps – Continuous)	Supply Power
~~AC Level 1~~	~~120V AC, 1-Phase~~	~~12A~~ ~~16A~~	~~120VAC/20A (12-16A continuous)~~

[14] *See* https://vancouver.ca/streets-transportation/electric-vehicles.aspx
[15] *See* https://www.vancourier.com/news/city-council-boosts-electric-vehicle-infrastructure-1.23202750

	~~120V AC, 1-Phase~~		
AC Level 2	208 to 240V AC, 1-Phase	≤ 80A	208/240VAC/20-100A (16-80A continuous)

Blue Planet Foundation is open to working with the Council on identifying ways to make this EV-ready policy more acceptable to all stakeholders. Potential approaches to decreasing the potential burden of this proposed EV-ready policy (as amended) include:

1. ***Phase-in period.*** Increase the required percentage of stalls in phases (i.e. 25% of new stalls starting January 1, 2020; 50% starting January 1, 2021; 75% starting January 1, 2022; 100% starting January 1, 2023).

2. ***Limit requirement.*** For multi-family buildings, visitor parking could be excluded (Vancouver does not require visitor parking to be EV-ready).

3. ***Allow the use of EV Energy Management Systems (EV EMS).*** Providing the capability for every parking stall to charge an EV at Level 2 may lead to unnecessary expense in developing the building's electrical capacity (transformer, circuit capacity, etc.). In reality, all cars charging at once is an unlikely scenario, but engineers would need to design for that extreme possibility. In order to minimize the impact on builders and the utility grid, Vancouver's requirements allow the use of an EV EMS. Because most personal vehicles are parked for 8 to 10 hours per day at home, an EV EMS allows multiple vehicles to share a circuit. This significantly reduces construction costs and utility costs. In Vancouver's law, an EV EMS must ensure that every EV charging outlet receive at least 12kWh over an 8-hour period. This means that, even if a vehicle is plugged into every single outlet at once, all EVs will receive enough energy for the next day (about 50 miles with today's EV technology, or about twice the average daily distance driven on O'ahu).

Blue Planet Foundation would be happy to provide draft language to the Committee accomplish this and ensure that we have a smart EV-ready policy for new construction on O'ahu that maximizes the benefits of clean transportation and smart buildings for all.

Conclusion

The proposed Honolulu building energy code amendments in Bill 25 CD1 are sensible, cost-effective, and flexible. They are a meaningful response to our climate crisis and the need to decrease the cost of living for O'ahu residents. Blue Planet Foundation strongly supports Bill 25's adoption with our proposed amendment to increase the EV-ready provision to handle Level 2 charging in all new parking stalls. We are happy to answer any questions about this proposed bill or our testimony. Mahalo for this opportunity to provide testimony.

From: CLK Council Info
Sent: Tuesday, September 03, 2019 12:59 PM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Lei Kamaka
Phone	8082911053
Email	hayn731@aol.com
Meeting Date	09-04-2019
Council/PH Committee	Council
Agenda Item	bill 25
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	I oppose the language of this bill. It states that it will only allow the installation of a gas- powered water heater if it is "fueled by a source that is not less than 90 percent renewable."
Testimony Attachment	
Accept Terms and Agreement	1

IP: 192.168.200.67

From: CLK Council Info
Sent: Tuesday, September 03, 2019 1:02 PM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Christopher Hall
Phone	8083887847
Email	CHRISTOPHERKIMHALL@YAHOO.COM
Meeting Date	09-04-2019
Council/PH Committee	Council
Agenda Item	Bill 25
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	I strongly oppose Bill 25 in its current form; specifically I am opposed to the language that refers to gas-powered water heaters must be fueled by a source that is not less than 90% renewable. This completely takes away the option of using clean, efficient gas for heating water. Natural gas provides an affordable energy choice, and as it currently stands, is much cleaner than HECOs energy portfolio which uses a majority of dirtier fossil fuels to power our grid. Natural gas is 30% cleaner than oil and 50% cleaner than coal. An instant gas water heater produces ½ tons CO^2 annually, while an electric water heater produces nearly 2 tons CO^2 annually. This is helpful to reducing our greenhouse gas emissions and combating climate change. Isn't this the ultimate goal? Gas is reliable and affordable, and there should be a variance to accommodate homeowners who are in a situation where, especially when sunlight and cost are limiting factors, a gas water heater is needed. A one size fits all solution does not work in Hawaii and this bill, while planning for the long term, is very short sighted.
Testimony Attachment	
Accept Terms and Agreement	1

From: CLK Council Info
Sent: Tuesday, September 03, 2019 1:16 PM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Richard J Silva
Phone	8083528358
Email	Silvar021@gmail.com
Meeting Date	09-04-2019
Council/PH Committee	Council
Agenda Item	Bill 25
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	I oppose the language of this bill that allows me to install a " gas powered water heater" only if "is supplied by a source that is not less than 90% renewable."
Testimony Attachment	
Accept Terms and Agreement	1

IP: 192.168.200.67

From: CLK Council Info
Sent: Tuesday, September 03, 2019 1:20 PM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Joshua K. Silva
Phone	(808)352-8586
Email	SilvakJoshua@gmail.com
Meeting Date	09-04-2019
Council/PH Committee	Council
Agenda Item	Bill25
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	I oppose the language of this bill that allows me to install a " gas powered water heater" only if "is supplied by a source that is not less than 90% renewable."
Testimony Attachment	
Accept Terms and Agreement	1

IP: 192.168.200.67

From: CLK Council Info
Sent: Tuesday, September 03, 2019 1:22 PM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Junefer D Silva
Phone	(808)358-0855
Email	Silvadjune@gmail.com
Meeting Date	09-04-2019
Council/PH Committee	Council
Agenda Item	Bill25
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	I oppose the language of this bill that allows me to install a " gas powered water heater" only if "is supplied by a source that is not less than 90% renewable."
Testimony Attachment	
Accept Terms and Agreement	1

IP: 192.168.200.67

From: CLK Council Info
Sent: Tuesday, September 03, 2019 1:24 PM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Frances D Silva
Phone	(808)225-5499
Email	Silvaf33@hawaii.rr.com
Meeting Date	09-04-2019
Council/PH Committee	Council
Agenda Item	Bill 25
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	I oppose the language of this bill that allows me to install a " gas powered water heater" only if "is supplied by a source that is not less than 90% renewable."
Testimony Attachment	
Accept Terms and Agreement	1

IP: 192.168.200.67

Speaker Registration/Testimony

Name	Zoe Williams
Phone	808-388-3721
Email	zoesterbmc@gmail.com
Meeting Date	09-04-2019
Council/PH Committee	Zoning
Agenda Item	Bill 25
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	Yes
Written Testimony	As an emergency manager, this movement in Hawaii to "electrify everything" concerns me greatly; it represents a single point of failure for disaster recovery. Two clear examples: • After hurricane Irma in 2017, Puerto Rico needed their conventional power plants (firm energy) back on line before they could get their renewable energy sources activated. • Kauai is the leader in solar energy in Hawaii. Just a few weeks ago, one firm energy power plant was down for scheduled maintenance, another went down unexpectedly. The weather did not cooperate and the solar plants could not keep up with demand. The result was rolling blackouts until the firm energy plant was brought back on line. Firm energy and renewables go hand in hand: • Firm energy can be very clean – Natural Gas and Propane are the cleanest burning fossil fuels available; definitely a good alternative for Hawaii. • Firm energy can also be renewable; we can pull methane off waste water treatment plants and landfills. Precious clean energy that at all but one location on Oahu is currently squandered by flaring because it's easier than recapturing. • Renewables are not always clean; the waste to energy plant on Oahu is definitely renewable - it burns rubbish, a fuel of which we will never run out, but it is the dirtiest of fuels and a critical necessity for an island with no landfill space. Firm energy and a diversity of energy options are critical to resiliency. Bill 25, if it becomes law in City and County Honolulu, will significantly undermine our energy diversity on Oahu. Please do not allow it to move forward.
Testimony Attachment	
Accept Terms and Agreement	1

IP: 192.168.200.67

EARTHJUSTICE

HONOLULU CITY COUNCIL

TESTIMONY IN **SUPPORT** OF BILL 25, CD1 (2019) RELATING TO THE ADOPTION OF THE STATE ENERGY CONSERVATION CODE

September 4, 2019, 10:00 a.m.
Honolulu Hale

Chair Anderson and Members of the Council:

Earthjustice **supports** passage of Bill 25, CD1 ("Bill 25") adopting the State Energy Conservation Code (2017), and specifically the amendment adding section R403.5.5, "Solar water heating." As written, Bill 25 **complies** with the State Solar Water Heater Mandate, Hawai'i Revised Statutes ("HRS") section 196-6.5 ("SWH Mandate"). Further, Bill 25 **advances** the policy goals underlying the SWH Mandate — namely curbing greenhouse gas emissions, reducing monthly housing costs, and fostering indigenous, renewable energy development — by promoting the most leading-edge technological alternatives to solar water heating that are currently available on the market. It is only through this type of decisive policy action on both the State and County level that Hawai'i will be able to meet its statewide renewable energy goals, and make affordable renewable energy available to all residents.

Earthjustice has been involved in advancing clean energy initiatives in Hawai'i for over a decade. Earlier this year, Earthjustice represented the Sierra Club of Hawai'i and Hawai'i Solar Energy Association in a lawsuit that established that the SWH Mandate does not contain a special exemption for gas demand water heaters.[1] Rather, gas demand water heaters, like other non-solar water heating technologies, can only be installed if an owner or builder obtains a variance from the Department of Business, Economic Development and Tourism ("DBEDT"). DBEDT can only grant variances to the SWH Mandate if it determines that installation of a solar water heater is impracticable or cost-prohibitive due to location specific factors,[2] or an alternative renewable energy technology is used to heat water. Location-limiting circumstances do **not** apply to the vast majority of new home developments currently being built on O'ahu, which are located in highly rated solar zones.[3] Bill 25, subsection R403.5.5, complies with the

---

[1] *See* Order (1) Denying Defendant State of Hawai'i -Department of Business, Economic Development, and Tourism's Motion to Dismiss Plaintiff's Complaint for Declaratory Relief Filed September 6, 2018, or For a More Definite Statement (Filed November 8, 2018) and (2) Granting Plaintiff's Motion for Summary Judgment (Filed December 17, 2018) filed in *Haw. Solar Energy Ass'n et al. v. Dep't of Bus., Econ. Dev. & Tourism*, Civ. No. 18-1-1398-09, in the Circuit Court of the First Circuit, State of Hawai'i (Feb. 21, 2019).

[2] Other restrictions apply to gas demand water heater variance requests.

[3] Information on solar zones is available online at: http://geodata.Hawai'i .gov/energis.

MID-PACIFIC 850 RICHARDS STREET, SUITE 400 HONOLULU, HI 96813

T: 808.599.2436 F: 808.521.6841 MPOFFICE@EARTHJUSTICE.ORG WWW.EARTHJUSTICE.ORG

SWH Mandate, allowing variances to the mandate only where solar water heating is impracticable or cost-prohibitive, or where an alternative renewable energy source is used for water heating.

Additionally, Bill 25, subsection R403.5.5, further **advances** the SWH Mandate's underlying policy goals by providing that variance holders who cannot take advantage of the benefits of solar water heating can use one of three alternative water heating technologies that benefit the environment and consumers. The first option, a grid-interactive water heater, uses excess energy from the grid to heat water, which is a leading-edge technology for demand response, i.e., adjusting customer demand to help balance and support the electric grid. HECO has repeatedly cited grid destabilization (excess energy) as a roadblock against accelerating adoption of renewable energy, including customer-sited rooftop solar. Addition of grid-interactive water heaters would promote this innovative solution and enable mutual benefits for grid reliability and consumer choice. The second option, heat pump water heaters, provides consumers with savings on their monthly electric bills, similar to those realized by homeowners who install a solar water heater. Finally, variance option 3 incentivizes innovation and advances Hawai'i's 100% renewable energy goals through the development of **renewable** gas.

The alternative water heater technologies advanced by Bill 25 provide additional benefits to the community that are not already provided for in the State Solar Water Heater Mandate, but are aligned with that statute's underlying policy purposes and goals. The SWH Mandate was passed to "increase the use of renewable energy to protect our environment, reduce pollution, make housing more affordable, and enhance Hawaii's local economy." 2008 Hawai'i Sess. Laws Act 204 § 1 at 752. Affordability in this context specifically means the monthly energy costs borne by renters and owners. *See* 2009 Hawai'i Sess. Laws Act 155 § 13 (explaining original policy purposes of Act 204). These policy goals are further advanced through Bill 25, subsection R403.5.5, which incorporates the most leading-edge alternative water heating technologies in order to advance Hawai'i's renewable energy goals, promote Hawai'i's energy independence, and help homeowners and renters with monthly housing costs.

Thank you for the opportunity to submit testimony on this important bill.

Sincerely,

Leinā'ala L. Ley
Attorney
Earthjustice